PROPERTY OF THE
SEATTLE PUBLIC LIBRARY

BUTANE-PROPANE News

THE RECOGNIZED AUTHORITY OF THE
LIQUEFIED PETROLEUM GAS INDUSTRY

Technology

MARCH, 1945

"They showed me how this weld assured greater strength!"

There's only a single circumferential weld in the entire construction of a Hackney L-P Gas Cylinder. This weld is X-ray controlled, assuring uniformity and maximum strength. The two shells are entirely seamless. They are pressed and drawn to shape by a process which assures uniform sidewall thickness and the elimination of defective material. After complete fabrication, the cylinder is heat-treated, thereby relieving weld stresses and assuring uniform physical properties.

The result is an attractive, durable, lightweight cylinder—the cylinder that is preferred in the industry.

Write today for full details.

Pressed Steel Tank Company

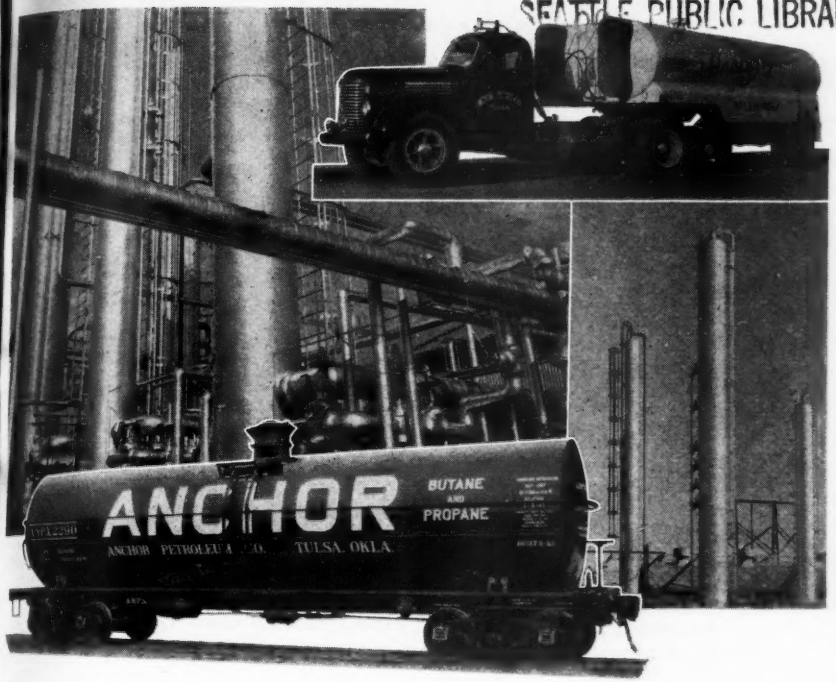
Manufacturers of Hackney Products

1399 Vanderbilt Concourse Bldg., New York 17
208 S. La Salle St., Room 2069, Chicago 4
552 Roosevelt Building, Los Angeles 14
1487 S. 66th St., Milwaukee 1

Hackney MILWAUKEE

CONTAINERS FOR GASES, LIQUIDS AND SOLI

PROPERTY OF THE
SEATTLE PUBLIC LIBRARY



ANCHORGAS . . . The dependable Butane-Propane, refined and tested to an exacting standard of uniformity, and backed by an experienced organization with modern manufacturing and transportation facilities.

ANCHOR
PETROLEUM COMPANY

TULSA, OKLAHOMA

Producers & Marketers

BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.

Contents for March, 1945

Letters 7
Comment 13
Mainly Beyond the Mains . . . . . *By Elliott Taylor* 17
Propane Goes on Scarce List 21
Silver Brazing With Propane . . . *By George W. Gray* 22
Where Would Be the Desert's Charm Without Gas? 29
G. W. Bach Talks Safety to Dealers 32
Current Reading 35
Heat Losses Quickly Figured 39
How G.I. Joe Can Finance His Postwar Home 40
Liquefied Petroleum Gas Price Ceilings 44
Quiz: Behavior of Gases 47
One Way to Control Butane Fires 50
Commercial and Industrial Applications — Chapter 8 — Greater Brooder Profits With Gas . . . . *By C. C. Turner* 55
Power: Survey Shows Increasing Need for Engine Conversions *By Paul Lady* 74
Pacific Coasters to Vote by Mail 80
Former Jobs for Service Men 88
The Trade 96
Classified 102
Advertisers 104

Publication Office

LOS ANGELES (14)—1709 W. Eighth St.
Phone: DRexel 4337.

Branch Offices

CHICAGO (3)—1064 Peoples Gas Bldg.
Phone: HARrison 6634.

NEW YORK (17)—50 East 42nd Street.
Phone: MURray Hill 2-4504.

WASHINGTON, Editorial Office—
306 National Savings & Trust Bldg.
Phone: DIstrict 0215

Editorial

LYNN C. DENNY, Editor
ELLIOTT TAYLOR, Washington Editor
H. W. WICKSTROM, Technical Editor
PAUL LADY, Assistant Editor

Executive

JAY JENKINS, President
ARTHUR ROHMAN, Vice President
JAMES E. JENKINS, Secty.-Treas.
ROY D. CRIPPEN, General Manager
L. V. HOHL, Eastern Manager
DAVID CARMEN, Mid-West Manager

March, 1945. Volume 7, Number 3. BUTANE-PROPANE *News* is published monthly. Copyright, 1945, by Western Business Papers, Inc., at 1709 West Eighth Street, Los Angeles 14, California. Subscription price: United States and U. S. Possessions, Mexico, Cuba, South and Central American Countries (in advance), 25c per copy, one year $1.50, three years for $2.50. All other countries $3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member of Audit Bureau of Circulation; Associated Business Papers, Inc.

Publishers: **GAS**, The *Natural* Gas Magazine; **HANDBOOK BUTANE-PROPANE GASES**; **THE BOTTLED GAS MANUAL**; **WESTERN METALS**.

LETTERS

Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

•

Gentlemen:

Will you please forward to me a list of the towns in Iowa which do not have piped gas systems?

G. B. L.

Virginia

We are glad to supply you with the list you request. Please note, however, that the towns given below have populations of not less than 250.

We can furnish names of towns with populations of 2500 or more in all states which do not have piped gas systems. Such Iowa towns are:

Algona, 4,954; Anamosa, 4,069; Bettendorf, 3,143; Bloomfield, 2,732; Cresco, 3,530; Denison, 4,361; Eldora, 3,553; Harlan, 3,727; Humboldt, 2,819; Manchester, 3,762; Monticello, 2,546; New Hampton, 2,933; Onawa, 3,438; Osage, 3,196; Rock Rapids, 2,556; Sac City, 3,165; Tama, 2,832; Tipton, 2,518, and Waukon, 2,972.

We hope that this serves your purposes.—Ed.

•

Gentlemen:

Could you tell me who makes or where I could purchase a plumber's torch for soldering solder fittings for propane gas?

C. J. D.

New York

If you address the Bastian-Blessing Co., 4201 Peterson Ave., Chicago 30, Ill., you will be able to obtain the kind of a torch you seek.—Ed.

•

Gentlemen:

Having been in the strictly utility end of the gas business for 15 years, and having been on a property which combines the liquefied petroleum gas business with the utility business for only the last 12 months, I am very much interested in seeing the LPGA and the AGA combine forces and efforts for their mutual benefit.

I have long advocated the serving of LP-Gas by the utilities. In fact, I think it is the only salvation for the smaller manufactured gas utilities.

C. J. C.

Pennsylvania

There are many members of both the LPGA and the AGA who feel as you do, and at this time constructive efforts are being made to present arguments favorable to such union to members of both branches of the gas industry.—Ed.

•

Gentlemen:

I am very much interested in learning if you could give me information concerning the heating and expanding of locomotive tires for removal or installation on the wheels. We serve propane gas to this territory off our gas lines and I should like to introduce it into the large railroad shops here which are off our lines.

In your opinion would a circular pipe burner of the correct diameter for the various size wheels with an appropriate number of ports be the most practical, or would a series of torches around the circumference be more practical? The present method is six torches using fuel oil and compressed air, the torches being mounted so as to be adjustable to different diameter wheels.

C. J. C.

Pennsylvania

We have no actual information upon the use of propane for heating and expanding

locomotive tires for removal or installation on wheels. I think the Union Pacific Railroad has utilized propane for this purpose, as it has for many others, both in its shop and on its trains. The Milwaukee Railroad also uses LP-Gas extensively, and probably it is used in its shops.

Propane would be a much superior fuel for these purposes than fuel oil. It would effect faster results and leave no soot or dirt. We think the torch method would be the more practical of the two you name.—Ed.

•

Gentlemen:

We are interested in obtaining some connections from which we can obtain the following items after the war, these to be used with propane bottled gas:

Coffee urns and steam tables for restaurants.

Clothes ironers for use in hotels or hospitals.

Lights.

Will appreciate it if you can give us the names of sources for above items.

R. H. E.

Minnesota

Coffee urns and steam tables for restaurants may be purchased from S. Blickman, Inc., 2101 Gregory Ave., Weehawken, N. J. Clothes ironers, for use in hotels and hospitals, are manufactured by many of the laundry machinery supply houses and are usually designated as gas fired mangles, dryers, and so forth.

Light fixtures and equipment can be had from the General Gas Light Co., Kalamazoo 11, Mich.—Ed.

•

Gentlemen:

Please send me complete literature you have on orfices for 2500 Btu. natural gas. I do a number of gas stove installations and need the above information badly.

J. P.

California

In our "Handbook Butane-Propane Gases," an entire chapter is devoted to this and related subjects and I think it would be well worth your while to have this book for reference.—Ed.

Gentlemen:

Could you give me any information on the operation of Cummings-Diesel engines for the use of propane for fuel, or could you refer me to someone from whom I could get this information?

F. M. H.

California

Regarding conversion of Cummings diesel engines to operate on propane, we can advise you that successful conversions have been made and the power output has been increased. We do not have data on the actual fuel consumption but it should be in the range of .4 pounds per BHP hour.

Naturally, the lube oil costs and maintenance costs will be reduced materially, due to the use of a dry gas fuel.

The changeover requires modification of the engine, including reduction in compression ratio, addition of carbureting and ignition system. Articles upon this subject will appear soon in BUTANE-PROPANE *News*.—Ed.

•

Gentlemen:

I am having to travel across country soon and would there be any chance of getting a map of the United States showing location of butane-propane stations; also a late national directory of butane power fueling stations.

O. S. B.

California

We do not have any more copies of our Directory showing automotive butane filling stations in the United States.

In Western states, you will not find a great deal of difficulty in locating filling stations that serve butane as long as you are traveling on the principal truck highways.

After you get east of the Mississippi, you will find few such stations and will find it necessary to get assistance from community dealers in liquefied petroleum gases who are serving domestic users. These men are established in most good sized towns and, in many cases, they will be able to assist you.—Ed.

•

• **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

COMMENT

SERVICEMEN, being released at the rate of 1000 daily, are filtering back into the economic life they left when they went to war.

A model plan for reabsorbing these men into the organizations to which they once belonged is discussed on Page 88 of this issue, and how veterans can finance postwar homes and buy appliances without cash will be found on Page 40.

With such planning by business firms and Government, G.I. Joe may find it easier to be fitted into the American pattern than at the end of World War 1. And as he makes his way and prospers, so will the nation as a whole be prosperous.

•

Many LP-Gas dealers have been so busy licking electric competition they have overlooked a bet.

It is about as easy to make a "package sale" of several appliances as a single sale. Washing machines are much in demand, but none are made to operate on gas. Why not stock a line of electric washing machines and sell one with every gas water heater installed? That would be a lot better than letting competition make the dual sale of both appliances.

•

Architects and builders are good people to know. They can tell you when new home construction is planned in your locality.

And you can tell them of a good kind of heating system to build into such homes.

It's a much better plan that waiting till the house is finished. Saves reconstruction to provide for floor furnaces, central heating plants, flue vents, circulating heaters and convenient piping.

Besides, it puts you on the inside where you don't have to worry about competition beating you to a contract.

•

One compensation — fewer cigarettes, fewer fires. Cigarette smokers are notoriously careless.

•

How do these things happen?

Butane and propane got all mixed up in the answer to Question 1 on the "Quiz" page (37) in the February issue of BUTANE-PROPANE *News*. The formulas for the two were reversed.

The correct form is, propane—$C_3 H_8$; butane—$C_4 H_{10}$.

Readers preserving these "Quiz" pages should make the correction.

•

Now: Few goods, abnormal demand. Soon(?): Civilian production—with expanded markets, intensified competition. Sales forces must be developed, prospect contacts re-established, good will restored. Are *you* getting ready?

•

We have never understood why so many industry men say "hot water heaters." (That's the kind we would like to have in our home to save gas.)

A *hot* water heater is used to generate steam—not to heat water. Just say, "water heater."

•

The first Chinooks are due!

By Ed.

PARTIAL LIST OF DISTRIBUTORS

ALEXANDRE, JULES, INC. Harrisburg, Pa.
APPLIANCE WHOLESALERS Newark, N. J
BROWN ROBERTS HDWE. & SUPPLY CO. Alexandria, La.
BURNS, JUDSON C. Philadelphia, Pa.
BUTLER BROTHERS Chicago, Illinois
CALIFORNIA HDWE. CO. Los Angeles, Calif.
FONES BROTHERS HDWE. CO. Little Rock, Ark.
GRANT, U. S. SUPPLY CO. Los Angeles, Calif.
HI-SPEED TIRE & ACCESSORY CO. Toledo, Ohio
HOFFMAN HARDWARE CO. Los Angeles, Calif.
HUBBARD, S. B. Co. Jacksonville, Fla.
JOHNSON ELECTRIC SUPPLY CO. Cincinnati, Ohio
KING HARDWARE COMPANY Atlanta, Ga.
LEE HARDWARE CO. LTD. Shreveport, La.
McCLUNG, C. M. & COMPANY, INC. Knoxville, Tenn.
MASBACK HARDWARE CO. New York City, N. Y.
MURCHISON, J. W. CO. Wilmington, N. C.
NASH HARDWARE CO. Fort Worth, Texas
ORGILL BROTHERS & CO. Memphis, Tenn.
PEELER HARDWARE CO. Macon, Ga.
PRESCOTT & CO. Boston, Mass.
RADIO TELEVISION & APPLIANCE CO. Seattle, Washington
ROBERTS SANFORD TAYLOR CO. Sherman, Texas
SCOTT, CHARLES B. CO. Scranton, Pa.
SELLER LOWENGART CO. San Francisco, Calif.
SHARP HORSEY HARDWARE CO. Atlanta, Ga.
STANDARD SALES CO. Spokane, Wash.
STRATTON BALDWIN CO. New Orleans, La.
TOWER, H. M. COMPANY New Haven, Conn.
TOWNLEY METAL & HDWE. CO. Kansas City, Mo.
TYRELL HDWE. CO. Beaumont, Texas
VAN CAMP HDWE. & IRON CO. Indianapolis, Ind.
VAN HOOGENHUYZE, WM. H. CO. San Antonio, Texas
VIRGINIA CAROLINA HDWE. CO. Richmond, Va.
WAHN, DISTRIBUTORS Division of the George H. Wahn Co., Boston, Mass.
WORTHINGTON, GEORGE COMPANY Cleveland, Ohio
WRIGHT & WILHELMY CO. Omaha, Nebr.
ZION COOPERATIVE MERCANTILE INSTITUTION Salt Lake City, Utah.

THERE will be many "extras" for your customers in the new L&H line that will be made when vital war needs permit — more "extras" than you expect!

Gas ranges will be "tailor-made" for the gas to be used! Electric ranges will have new automatic temperature and time controls to enable housewives to cook safely while out of the kitchen or house!

Impressive beauty — plus "dreams-come-true" features in cooking efficiency and time and labor saving operation. The advanced L&H line will give housewives more for their money—will give dealers "quick turnover and customer satisfaction".

Remember—the L&H line includes electric ranges, gas ranges, electric water heaters, oil stoves, oil heaters, and portable ovens. It is backed by 70 years of business success. It will be a good line to sell.

Vital war needs still come first. Production for civilian use is limited. But NOW is the time to start planning — and to get set with the profitable L&H franchise.

Write your nearest L&H distributor today—or write direct to L&H.

A. J. LINDEMANN & HOVERSON CO.

Since 1875

MILWAUKEE 7, WISCONSIN

KERIDAS ALCAZAR

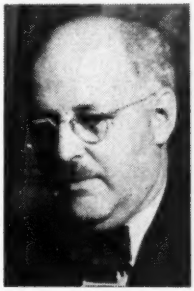
Manufacturers of ELECTRIC RANGES • ELECTRIC WATER HEATERS • GAS RANGES • OIL STOVES • PORTABLE OVENS • OIL HEATERS • WICKS

MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

The Final Freeze

With the announcement on Feb. 15 that the new policy of PAW would be to deny all new propane installations, or additions to existing installations, the propane operators are brought under the limitations of the same policy that has been in effect on butane since last November. As it now stands applications for installations may still be made but they will be universally rejected, and unless a case is so exceptional as to be in a class by itself it will be just a waste of time to file the request.



ELLIOTT TAYLOR

That is only a PAW statement of policy, however, and not a new order or ruling; and for the present it does not apply to PAW District 5, the Pacific Coast states. But action taken by the WPB in rescinding paragraph d-3 of its order L-86 **does** apply in the West, as well as throughout the other PAW districts, and this now prohibits the reinstallation of used equipment without specific approval of each job on a Form WPB-809 application.

This is the final result of a situation that has been growing increasingly worse since the winter of 1944. In our opinion it is a step that was taken with great reluctance by PAW, and only after it became obvious that it was inevitable. The situation in brief is that far too many new installations using both butane and propane have been going in, and, as a result, the shortage of gases on the one hand and the inadequacy of the tank car fleet to handle the movement on the other, has created a condition that has become critical in many areas.

While it has been argued that it was ill-advised on the part of PAW to announce its new policy without holding consultations on its necessity with the district industry committees, it is doubtful whether any other way out would have been found as a result of such discussions.

Since the reinstallation of used equipment is now prohibited without specific authorization, there will be a tendency, so long as the present policy prevails, toward a falling away of the total number of customers served by the industry. It cannot be assumed that the PAW now has

any other end product in mind. The original exemption of used equipment from the terms of the order was intended to permit the industry to remain in a static condition. Enough new customers were to be permitted to come onto the lines to replace those who moved or discontinued liquefied gas service. But under the new ruling every customer lost is lost for the duration.

Whether or not PAW will be willing or able to alter its policy after the war in Europe ends is anyone's guess. We are of the opinion that **if** the cut-back in manufacturing that results, hits plants using considerable quantities of propane, and **if** the natural gas situation in industries in the Appalachian area does not require new use of propane standby to keep essential production moving, there may be some relaxation as far as propane prohibitions are concerned. But the **ifs** are big ones.

The butane situation at the present writing shows even less promise than does that of propane. The war in the Pacific will be more than ever a battle of fuels, and no cut-backs are anticipated in high octane gasoline as a result of German collapse.

And since our own private non-logistic opinion that the war in the Pacific will be over before next winter is not shared by official Washington, we should say that, viewed from their superior vantage point, butane rationing is just around the corner.

Modern Frontier

About the biggest boost liquefied gas has ever had in the field of national magazine advertising is found in the Shell Oil Company's four-color full pages in recent issues of "Collier's," "Life" and the "Saturday Evening Post." The more than ten million combined circulation of these publications represents the biggest audience ever assembled for one piece of propane copy within our knowledge of the industry.

Captioned "Diary of a Frontier Wife," and with the page dominated by an attractive kitchen scene as viewed through a snow-banked window, the whole conception of the ad from illustration, through caption and into the body of the copy, is one that arouses interest and invites attention. The copy itself, even that which is descriptive of the product, has a character of simplicity that is at once interesting and informative:

"Boiling point 45° below zero. Shellane . . . is compressed to a liquid and forced into steel cylinders which are delivered to the consumer. At any temperature down to 45° below zero, when the pressure in the cylinder is eased by turning on the gas, the liquid begins to boil . . .

"Like boiling water changing to steam, boiling Shellane changes to gas . . . it responds precisely like city gas when you light a burner. It burns with the same intense flame — smokeless, sootless, odorless, hot . . . Piped to your gas re-

frigerator, it creates cold storage and ice cubes."

The significance of this advertisement is not limited to the good that it may do for Shell dealers. As a matter of fact it may cause them another little flurry of explaining why they can't take on any new load during the war. Its significance lies in the fact that it injects into the thought stream of the millions who read the popular magazines the idea that liquefied gas is a product so stabilized, so accepted and so highly regarded by a company like Shell that it is deemed worthy of advertising even at a time when new customers must be rejected until war's end.

The postwar competitive problems of butane and propane will be largely inter-industry, knockdown and drag-out fights between gas fuel and electricity, coal or oil. Competition between a liquefied gas called Shellane and the same gas called something else by another refiner will be but insignificant side-play compared to the heat and fury of the main battle for the consumer's fuel dollar.

It is for this reason that we say that the significance of the current Shell contribution cannot be limited by considering it in terms of the sponsoring company's self interest. It enhances the future position of all bottled gas and it strengthens the hand of any dealer regardless of whose propane he delivers in his cydinders.

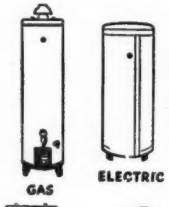
Out-of-Town Trend

Decentralization—the idea that sooner or later Americans are going to have enough sense to get out of the cities and live where there is an occasional breath of fresh air—is still considerably in the idea stage. It had begun to develop to some extent as a definite movement before the defense program leading to our entry into the war was undertaken; then, the necessity for getting production out fast wherever the existing plant happened to be, put an end to further flight from the city now.

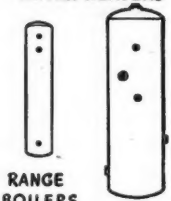
But there are sound indications that the concept of suburban or semi-rural living, even for those employed in urban occupations, far from being done to death by wartime concentration, is having a great renaissance that exists in a great longing to get away from the crowding of metropolitan living once and for good.

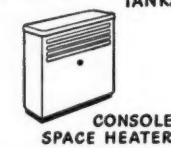
One prominent planner estimates that from thirty-five to fifty percent of the new home construction will be outside of existing corporate city limits.

This all adds up to liquefied gas opportunity; but it doesn't mean that it won't require planning and working to make the most of it. Right now the builders, architects, real estate agents and subdividers are all well worth cultivating by those who want their gas to be considered in the new building program that will be mainly beyond the mains.



AUTOMATIC WATER HEATERS

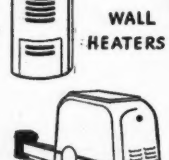




CONSOLE SPACE HEATERS

DUAL REGISTER FLOOR FURNACES

WALL HEATERS



COAL STOKERS

RHEEM

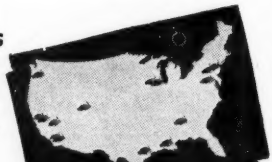
There's a big post-war opportunity for you with *RHEEM*

WHEN Rheem swings over from wartime to peacetime production, its post-war products will offer a growing market—an opportunity for growing profits.

The Rheem line will include a group of better water heaters for all types of fuels—gas, liquid gas, electricity, oil and coal; floor and wall furnaces; consoles and other space-heating equipment; Stokermatic coal stokers and stoker-fired furnaces; range boilers and tanks of all kinds—new appliances for better living. They all represent opportunities for a great business-building future.

When Victory comes, Rheem will have unexcelled manufacturing and research facilities . . . will focus its experience on volume production of quality-built household appliances. The Rheem line offers real opportunity for a business-building future.

In Your Plans for the Future . . . include Rheem



RHEEM MANUFACTURING COMPANY

Executive and General Sales Offices
New York, San Francisco, Los Angeles, Chicago, Washington, D.C.

15 Plants Cover Every Major Market in the U. S. A.
3 Plants Serve Australia

Propane Goes on Scarce List

West Coast States Excepted

DEPUTY Petroleum Administrator Ralph K. Davies said Feb. 15 that increasing demands for propane as fuel in war plants and serious shortages of all types of transportation facilities have made it necessary for the Petroleum Administration for War to take three steps to conserve propane:

1. **Applications for new installations of equipment using propane will not be approved.**
2. **Applications for the installation of equipment used to connect propane-consuming appliances with existing liquefied petroleum gas systems will not be approved.**
3. **Liquefied petroleum gas dealers now must apply to PAW for authorization to install or reinstall any type of used LP-Gas equipment for purposes other than maintenance and repair. Applications of this type should be submitted to PAW on Form WPB-809. Action calling for the PAW authorization was taken by amending War Production Board Limitation Order L-86, which rescinds sub-paragraph (d) (3).**

Previously, dealers were permitted to reinstall gas equipment that had been installed and in actual use prior to April 1, 1942, and which was removed from use after that date.

The first two of the three steps taken by PAW apply throughout the country except in the West Coast states (PAW's District 5), where problems of propane supply and transportation are less acute and the Pacific war demand for other tyes of fuel from this area can be aided to a large extent by the installation of propane-consuming equipment. The third step is applicable throughout the United States. Similar measures to conserve butane already are in effect in all five PAW districts.

Except in the West Coast states, liquefied petroleum gas operators cannot purchase gas cylinders for new installations.

Mr. Davies explained that much liquefied propane gas is distributed in pressure cylinders by trucks to domestic users for water-heating and cooking purposes. The cylinders that are being filled while others are in use are known as "floating stock."

Since cylinders becoming idle as a result of inactive installations or consumers' cancellations can no longer be reinstalled, Mr. Davies said that these cylinders should immediately be placed in the distributors' "floating stock" to alleviate inadequate transportation and storage facilities.

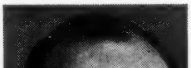
Mr. Davies emphasized that the shortage of pressure tank cars, tank trucks, truck parts, tires, and manpower is serious and has a pronounced limiting effect on the distribution of propane. He said that it is becoming impossible to meet both domestic and industrial demands for liquefied gas.

Silver Brazing With Propane Broadens Hard Soldering Field

By GEORGE W. GRAY

Assistant Vice President, The Verkamp Corp., Cincinnati

DEVELOPMENT of the new free-flowing, low temperature melting point, silver brazing alloys has greatly widened the uses and applications of hard soldering. Joints having tensile strengths very much higher than soft solders can be made at temperatures between 1000° F. and 1200° F. using these alloys.



GEO. W. GRAY

Silver brazing alloys are basically of the non-fillet-forming type and small clearances with clean surfaces are required for best results. As a contrast with joints made by welding or torch brazing, where a bead is applied, these joints are usually made by a "sweating" operation. Both parts to be joined are heated to a temperature above the melting point of the alloy which then flows freely into the joint being drawn by capillary attraction.

Competitive Standing. Perhaps the greatest competitor of silver brazing is copper brazing with hydrogen. This operation requires temperatures of 2000° F. to 2100° F. on account of the relatively high melting point of copper which is fused to form the joint. This work can be carried on only in specially designed muffle furnaces, providing hydrogen atmospheres which reduce all scale and oxides from the work. Vestibules or cooling chambers permit the work to cool in these controlled atmospheres to avoid the severe scaling or oxidation which would result from exposure of the work to air at these temperatures. Here are the relative advantages of silver brazing as compared with copper brazing: Higher tensile strengths, lower

Seven Ways in Which Silver Brazing Excels Copper Brazing

1. **Higher tensile strengths.**
2. **Lower temperatures.**
3. **Lower cost per joint.**
4. **Localized heating.**
5. **Lower equipment investment.**
6. **Inspection during operation.**
7. **Greater adaptability.**

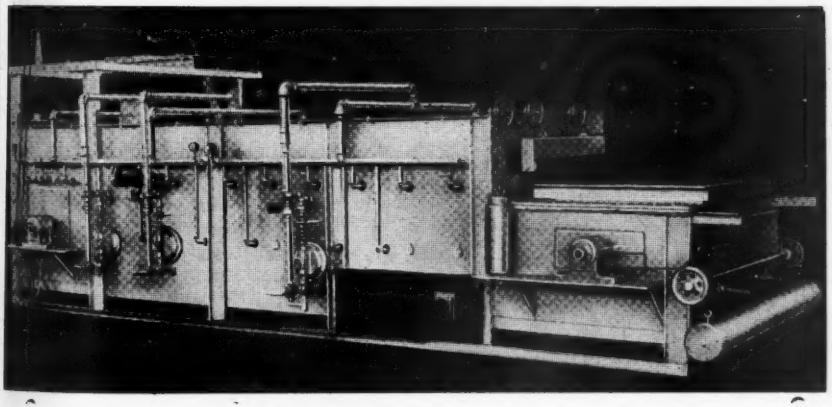
temperatures, lower cost per joint, localized heating, lower investment in equipment, inspection during operation and greater adaptability and wider applications.

In favor of hydrogen brazing, we might point out that the work is produced in a bright and clean condition so that no further pickling or sand blasting is required. Copper brazed joints may also be subsequently heat treated without danger of melting the copper. These advantages are easily offset by the great versatility of silver brazing, and it is safe to predict that the latter will find an increasing number of applications in the future.

Operating Methods. Of primary interest is the adaptation of silver brazing to quantity production.

Continuous or automatic or semi-automatic brazing operations will vary greatly with the size of the work, the shape of the work, the material, and the relative sections of the two pieces to be joined. Since the cost per assembly depends almost entirely on the number of acceptable joints per man-hour, it is necessary to provide adequate continuous heating and handling equipment. A production brazed joint is the product of a delicate balance between time and temperature, and the applications of flux, heat, and alloy must be planned very carefully in order to obtain an economical production volume.

Planning a Production Set-up. Application of flux may be made either by brush or by dipping the work in a diluted flux bath and shaking off the excess. Fluxes are usually made up of borax and bifluorides in a paste form, and the manufacturer of the alloy can usually furnish them. Special alloys are available for joining nonferrous metals and in some cases a flux is not required. Since many fluxes are easily burned up by overheating, it is sometimes advisable to use a higher melting point compound in operations such as the joining of



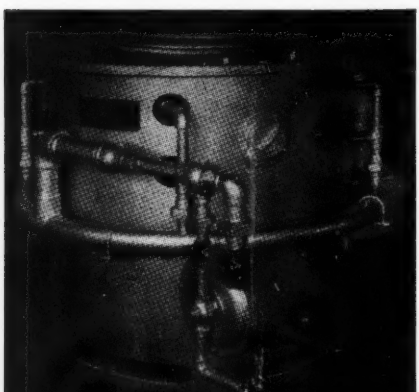
Continuous brazing furnace.

light sheet metal parts which are difficult to heat uniformly.

Oily work should first be pickled or cleaned. Vapor de-greasers using trichlorethylene or perchlorethylene are very satisfactory; however, material cleaned in this manner will oxidize very rapidly in air. If the rusted condition is only slight it can usually be taken care of by the reducing action of the flux.

Application of Heat. The application of heat is the most important phase of silver brazing production and it is here that we come to the story regarding the advantages of propane in this field of industrial operations. Practical methods of applying heat to the work may be roughly described under the following classifications:

1. Batch Type Oven Furnaces. These must be of sufficient input rating to heat various shaped loads quickly. Convection furnaces which circulate the heated air at high velocities are strongly recommended because of the high rate of heat transfer and the excellent uniformity obtained. The work must be pre-assembled on trays or fixtures and cannot be adjusted or inspected during the brazing operation. Light oxide scale or temper color will form over the entire surface of the work, which must be removed later by pickling or sand blasting.



High temperature salt bath furnace.

2. Continuous Furnaces. These carry the work through the heated zone by means of conveyors or moving hearths. Hearths may be of woven belt type, or of alloy link design. One-piece hearths of heat-resistant cast alloy which jog the work through the heated area by a reciprocating motion are also in use. Parts to be joined in this type of furnace must be rigidly pre-assembled and the brazing alloy must be placed so that it will not be shaken out of place.

3. Salt Bath Furnace Methods. Here the assembled work is immersed in a molten chloride or cyanide bath and the heating of the metal parts to be joined takes place by conduction from the liquid salt. Very rapid heating is possible by this method. A quantity of the molten salt adheres to the work when lifted from the bath and may be removed by quenching in water at lower temperatures, or by washing in hot alkali cleaning solution.

It has been demonstrated that the use of propane-air in firing these pot furnaces greatly increases the life of the pots, as loss of metal by external scaling or oxidizing can be cut to a minimum by the use of this fuel. While overall heat losses are considerably higher with this type of furnace than with the standard oven types, it is possible to obtain excellent production on account of the high rates of heat transfer.

TABLE 1.

Fuel mixtures	*Approximate temperature range*
Low pressure propane—atmospheric air	100°- 600° F.
High pressure propane—atmospheric air	500°-1800° F.
Low pressure propane—high pressure air	1200°-2000° F.
High pressure propane—high pressure air	1200°-2500° F.
High pressure propane—oxygen	3000°-5500° F.

Since salt bath brazing must be done without a flux the bath must have a reducing action on the surface of the work. The presence of the slightest oxide will impede the amalgamation of the alloy with the surface metal. This method of brazing has serious limitations, especially when the metal parts to be heated are of a fairly heavy section. If the alloy in sheet or wire form is exposed to the bath it will tend to melt very rapidly before the parts to be joined have come up to heat, and will tend to form a ball and roll away from the joint. If it is possible to pre-position the alloy internally, better results will be obtained.

4. Induction Heating. A relatively new method of raising the temperature of metal parts by inducing into them a high frequency oscillating electric current is rapidly coming into the picture to furnish competition to the users of gas. There are three methods of generating high frequency electric oscillations, namely, the high frequency generator, the resonant circuit involving an inductance, a capacitance, and a spark gap, and the vacuum tube oscillator.

The high frequency current is induced into the work by means of a small water-cooled copper coil which is usually specially shaped to fit the work. The extremely rapid alternations of the current cause the molecules in the steel to reverse themselves rapidly, causing the temperature to rise. Phenomenonally fast heating is possible by this method, but the equipment required is relatively expensive and is not generally as versatile as other heating methods. Further, the heating takes place at the surface of the steel and penetration to inner joints requires extra time.

5. Torch Method. The use of torches either by hand or in connection with conveyors which carry the work through the heat in proper relation to the source has proven to be the most versatile and in many cases the most practical and economical method for use in silver brazing. There are five basic types of burners, each of which has its own specific use in furnishing pre-heat, high heat or final spreading heat, and are listed as in Table I.

The use and disposition of these various types of burners depends entirely upon the size and shape of the particular job to be done and it is often advantageous to combine several types of burners in the same unit. It can be readily seen from the above chart that propane furnishes an ideal range of temperatures and flame characteristics making it possible to obtain any desired heating rate.

One particular advantage in the use of torch burners is that the

work may be inspected while the brazing is going on and the operator can control the flow of silver alloy by hand application. This method works out exceptionally well where the parts to be heated are rather intricate and the percentage of rejects can be cut down to a very low figure. Often it is possible to work out a selective heating plan and economies may be effected by the saving of fuel. Distortion may also be avoided by heating locally only the vicinities to be brazed. The production brazing layout, especially with the torch method, includes a case study of temperatures, time, and rates of heat transfer, and an accurate proportion of these factors must be maintained.

Heat Transfer. One important factor in setting up a production brazing machine is the conduction of heat, which is its transfer along a medium or, by contact, from one medium to another. The thermal conductivity of the material is the quantity of heat transferred per unit time, per unit area, per unit depth, per degree temperature difference. Since it is inadvisable to apply flames directly to the parts to be brazed, knowledge of heat flow characteristics is important. Thermal conductivities for some of the common materials are listed below:

		Btu./hr./sq.ft./in.thickness deg. F. at 400°
Steel	300	"
Yellow Brass	1010	"
Iron	360	"
Nickel	390	"
Silver	300	"
Copper	2605	"

The specific heat of the materials joined must also be taken into account in designing burners and estimating production. This is the relative amount of heat required to raise the temperature of the material, using water as a reference. Specific heats of some common materials are listed below:

Yellow Brass	.088
Iron	.1152
Nickel	.1128
Silver	.056
Copper	.0951

$H_2O = 1$

Typical Applications. Fig. 1 is a typical brazing job and is basically a furnace operation. A shim of silver alloy is placed between the base plate and the reinforcing angle to be brazed in. It must be borne in mind that the parts will move together from .005 in. to .020 in. as the alloy melts and provision must be made to force the parts together when heating takes place in order that the strongest possible joint can be made. For high tensile strength, clearances between parts to be joined should be held between .001 in. and .003 in. Best practice is to position the work so that the parts settle together by

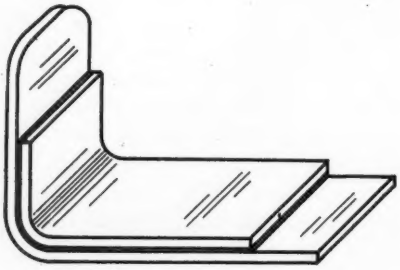


FIG. 1

gravity, as a clamping device may take time to adjust and may become joined to the work.

Figs. 2 and 3 show the joining of light sections such as sheets or tubes to relatively heavy parts. The alloy wire is formed into small rings which are first put into position so that upon melting the alloy will flow to the joint and then be drawn into the area between the adjacent surfaces by capillary attraction. In applications such as these it is advisable to direct the

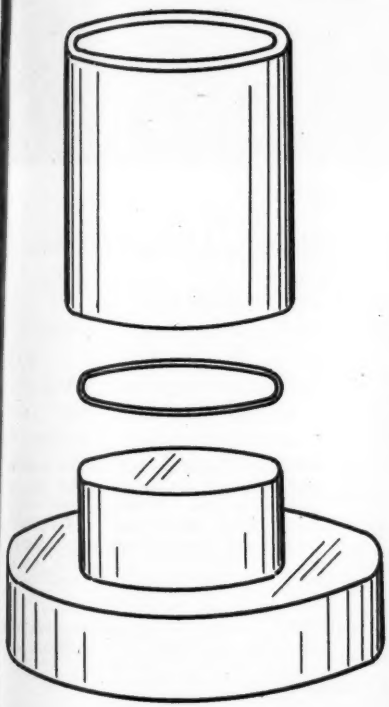


FIG. 2

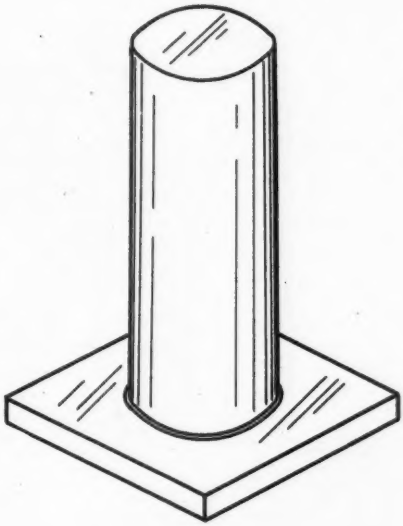
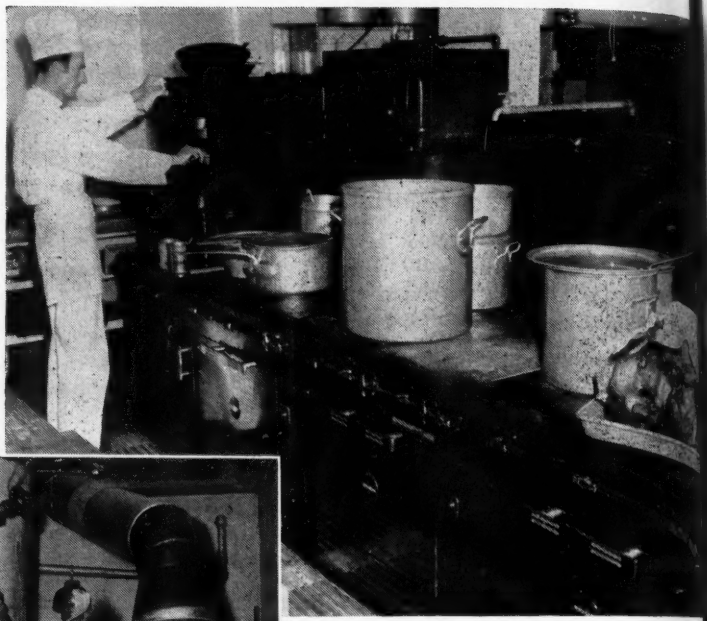


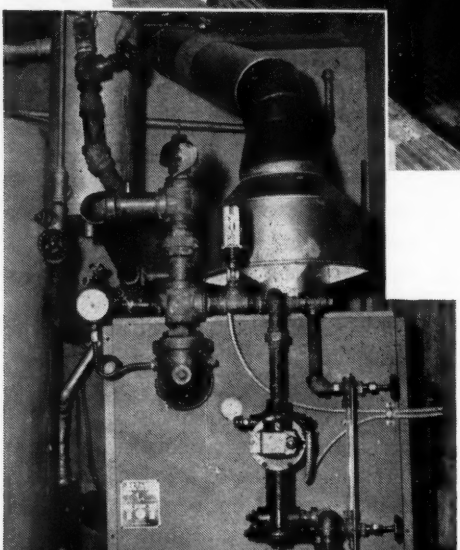
FIG. 3

torch flames against the heavier sections and then to let the heat carry by conduction to the lighter ones. In this way, overheating of lighter sections is avoided and the flame is kept away from the joint.

It is impossible to standardize silver brazing methods in view of the tremendous variety of applications and types of work. Each particular operation requires its own special handling and it is possible here to scratch only the surface of this large field.

There will be a great expansion in the use of these free-flowing, low temperature brazing alloys and it is evident that the use of propane will play a large part in this development.



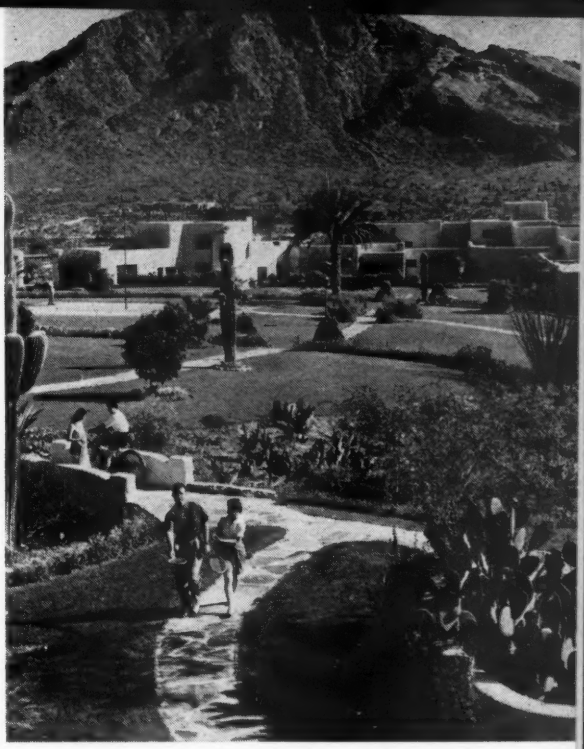


Liquefied Gas in Command

ABOVE: Chef-Steward Daniel Dew at work by the Garland broiler in the Camelback Inn. The Wedgewood ranges shown in the foreground are all operated on liquefied petroleum gas.

LEFT: Bryant water heater and storage tank installation at Camelback Inn.

Where Would Be The Desert's Charm Without Gas?



Rich, green lawns, swimming pool, flower and cactus gardens create a real desert oasis at Camelback Inn, near Phoenix, but back of the scenes LP-Gas takes—and deserves—credit for cooking the kind of meals that attracts guests year after year.

BECAUSE liquefied petroleum gas is used so importantly, it may be this fuel, rather than the proverbial sunshine, that has brought a fair degree of fame to the charming and unique "Camelback Inn," situated 11 miles from Phoenix. At least one may judge this to be true from the praise rendered this fuel by Manager Jack Stewart and his versatile chef, Daniel Dew.

Mr. Dew, a celebrity in his own right, is said to be the only outstanding chef in the country who doubles as a magician. He traveled the RKO circuit for years and often gives a performance for the entertainment of Camelback guests.

There is no magic, however, in his performance in his kitchen. Surrounded by all "Bu-Gas" equipment, consisting of several Wedgewood ranges, a Garland broiler, a vegetable steamer, a dishwarmer, two large coffee urns and two dishwashers, Chef Dew prepares the finest food possible for the discriminating guests of the Inn.

The LP-Gas is furnished by Fannin's Gas and Equipment Co., of Phoenix. As a cleaner, better fuel, Chef Dew and Manager Stewart

Storage tank instal... by Fannin's Gas ... Equipment Co. at ... Camelback Inn, Phoe... nix, Ariz., cleve... landscaped with de... ert foliage.

give it much credit for the reputation Camelback enjoys for its delicious meals.

Today Fannin's Gas and Equipment Co., owned and operated by Ernest and Paul Fannin, maintains a complete "Bu-Gas" storage plant in Phoenix, occupying three acres, a fleet of modern tank trucks, and spacious sales and display rooms for gas equipment and appliances. Through 10 bulk plants they distribute "Bu-Gas" and gas equipment and appliances throughout the state.

LP-Gas for fuel and refrigeration is supplied to city and suburban homes and to farm and ranch homes, many of which are miles from the nearest town. Restaurants, commercial concerns, government agencies, army posts and army and navy aviation schools are among Fannin's customers.

Before the war LP-Gas was shipped to Fannin's by rail from Pacific Coast refineries. Now they operate large transport trucks.

Their trucks operate on a "round the clock" schedule, day and night, between Phoenix and the Pacific Coast refineries to maintain a constant supply of fuel. Shipments to Fannin's distributors are still made by railroad tank cars.

ODT Says Certificates Are Good Until Cancelled

The Office of Defense Transportation advises commercial motor vehicle operators that Certificates of War Necessity issued to these operators are good indefinitely until cancelled and need not be renewed on an annual basis.

Under ODT regulations, operators do not have to have their certificates re-issued unless they propose to change the character of their services or the territory for which the present certificates were issued.

The OPA now is responsible for the collection of gasoline ration coupons or checks in the hands of operators at the close of the quarter for which they were issued.

★ ★ *You'll be selling the*

NEW FREEDOM GAS KITCHEN

featuring ROPER *"America's Finest Gas Range"*

As a promise for better days ahead, the New Freedom GAS KITCHEN is being extensively advertised to housewives the nation over.

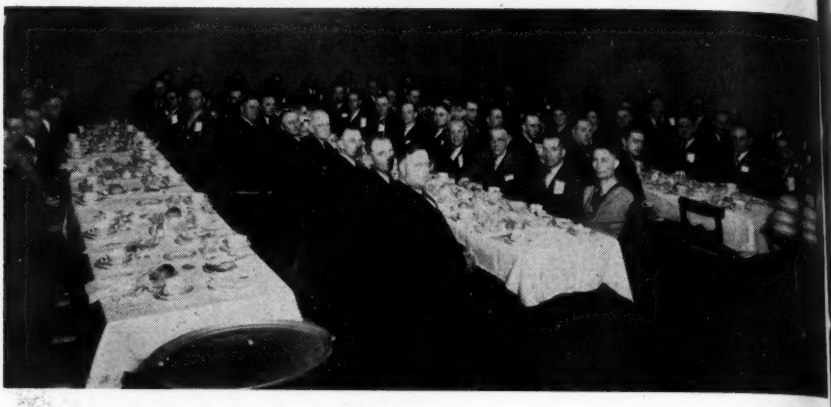
Nothing in that kitchen is more clearly destined for popularity than those gleaming new ROPER *Liquefied Petroleum* GAS RANGES to come. They'll fit modern kitchen planning perfectly. They'll assure a cooking service that goes all the way.

Look for them—not today, but tomorrow—as the progress of the war makes possible their manufacture in increased quantity.

★ ★ GEO. D. ROPER CORPORATION, Rockford, Illinois, manufacturer of ROPER, "America's Finest Gas Range" designed especially for use with L.P. (Liquefied Petroleum) gas.

ROPER GAS RANGES ★

Offices and Warehouses in Atlanta—Chicago—Cleveland—Dallas—Denver—Los Angeles—Oakland—Philadelphia



More than 60 Colorado LP-Gas dealers attend January meeting of State association.

G. W. Bach Talks Safety to Dealers

THE Colorado State LP-Gas Association held its first meeting of 1945 in the Centennial Room of the Shirley-Savoy hotel, Denver, Jan. 25.

George W. Bach, manager Skelgas Division, Skelly Oil Co., was the principal speaker. He stressed safety practices and responsibility of the industry to the public.

Insurance Protection Explained

Don Collyer, of Brainerd, Montgomery & Sanborn, Insurers, outlined basic rules for insurance protection to properly cover operators in the business. Both speakers answered questions in open forum discussions.

A short business session was conducted by Harry Torbit, president of the association, at which legislation to regulate the LP-Gas industry, pending in the Colorado Legislature, was discussed and a report of the legislative committee was accepted.

Other officers of the association are T. H. Anderson, vice president, and F. N. Mabee, secretary-treasurer.

More than 60 members were present at the meeting.

AGA Cancels Industrial, Commercial Gas Conference

In accordance with the request of Director of War Mobilization Byrnes to save non-essential travel and hotel accommodations, the Executive Board of the American Gas Association has cancelled the AGA War Conference on Industrial and Commercial Gas scheduled for Toledo, Ohio, on March 29-30.

Certain of the papers scheduled for presentation at this conference will be made available to gas companies and equipment manufacturers at a later date.

Committee meetings of the Industrial and Commercial Gas Section scheduled for Toledo will be held on March 28.

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

Factors in Design of Research Laboratory—C. Haines. "Oil and Gas Journal," Nov. 18, 1944, pp. 202-204. Prewar research and development work were responsible for the petroleum industry's ability to move quickly into the large-scale manufacture of war products. Operating companies and those serving the petroleum industry with processes and equipment have plans to continue this work on greatly expanded basis in the postwar period. In this article the author describes one of the largest of the new research laboratories serving the industrial field. The description is presented because the principal features in building design are applicable to the petroleum industry.

Phase Behavior in Systems of Hydrocarbon-Furfural-Water — Clark Holloway, Jr., and S. H. Thurber. "Industrial and Engineering Chemistry," Nov., 1944, pp. 980-985. Systems of three hydrocarbons with a furfural-water solution are studied with respect to cloud point and to density of cloud point liquid. Isobutane is the least soluble in the 4% water—96% (by weight) furfural mixture, followed by n-butane and l-butene. Isothermal vapor pressure and density data for the same three systems and for the corresponding butadiene system are taken at four temperatures above the cloud point curves: 250°, 200°, 150° and 100°F. These vapor pressure data permit the calculation of activity coefficients which are presented as plots of gamma against x for each system at the four temperatures. It is impossible to correlate the data with the van Lear or similar equations. Experimental vapor pressures for 1-butene and for 1, 3-butadiene are given up to 250°F.

Liquid Densities of Volatile Hydrocarbon Mixtures—G. H. Hanson, B. B. Kuist and G. G. Brown. "Industrial and Engineering Chemistry," Dec., 1944, pp. 1161-1165. The use of apparent densities for methane and ethane in the liquid phase, suggested by Standing and Katz for estimating the density of crude oil saturated with natural gas at high pressures, has been extended to liquid mixtures of volatile hydrocarbons as found in natural gasoline. The modified expansion factor method suggested by Gamson and Watson also appears satisfactory for estimating the density of a complex liquid mixture such as natural gasoline from the composition of the mixture.

Horizontal Tank Calibration—E. F. Brummerstedt. "National Petroleum News," Dec. 6, 1944, pp. R-580-582. Determining the correct calibration of gage pole for measuring the contents of a cylindrical tank which is in a horizontal position is often a time-consuming job, involving as it does the use of complicated mathematics. In this article a simplified mathematical formula for calculating the con-

tents of such a tank at any depth is developed. The author goes one step further, then, and uses his simplified formula to plot a generalized calibration curve which can be used for any horizontal cylindrical tank by adjusting what he terms "volumetric coefficients" for the proper length and diameter. Although developed specifically for tanks with 2:1 ellipsoidal heads, the curve can also be used for tanks with either flat or spherical heads.

Practical Approach to Packing of Chemical Pumps — S. L. Lopata. "Chemistry and Metallurgy," Dec., 1944, pp. 104-107. Successful packing of chemical pumps is often one of the most exacting phases of chemical plant work. The author classifies the commonly pumped liquids and lists satisfactory types of packing for each. He discusses the characteristics of the various yarns and lubricants employed in packings, shows how the packing should be installed and explains how to determine when it should be replaced. His comments on the use of grease and water seals will assist in the proper understanding of these adjuncts.

Viscosity of Propane-Oil Mixtures— R. W. Moulton and A. J. Mitchell, Jr. "Petroleum Refiner," Dec., 1944, pp. 101-104. The viscosity of propane-oil mixtures has been determined with a rolling-ball type of viscometer. The propane-to-oil ratio was varied from 1:1 to 5:1 and the temperature from —40°0. to 0°0.

Thermal Expansion of Pressure Samples of Hydrocarbon Liquids from Gas-Condensate Wells — R. Vincent Smith, M. A. Schellhardt, and E. J. Dewees, "Minerals Yearbook, 1943," Bureau of Mines, Washington, D. C., 23 pp., 17 figs. Fluids produced from many so-called gas-condensate-type reservoirs have become important source of hydro-carbons vital to war. Because recovery operations in such fields present problems not common to ordinary gas-producing operations, properties of fluids recoverable from reservoirs of that type were studied by Bureau engineers for several years; in cooperation with American Gas Association. Paper presents results.

Distribution Equation—J. A. Campbell. "Industrial and Engineering Chemistry," Dec., 1944, pp. 1158-1161. The application of the Freundlich equation to the correlation of data relating to the distribution of a solute between any two phases (gas-liquid, liquid-liquid, gas-solid, or liquid-solid) is suggested. This equation is readily adaptable to the usual methods of calculation involved in absorption and extraction.

Centrifugal Pump Control — I. J. Karassik. "Power Plant Engineering," Dec., 1944, pp. 74-76, 87. Part 1. This article takes up concepts of the characteristics of centrifugal pumps. This is desirable in order to make clear how centrifugal pumps operate and just what must be controled. Relations between pump performance characteristics, system characteristics, operations of head and capacity are discussed.

Applicability of Newer Physical Methods for Hydrocarbon Analyses— W. J. Sweeney. "Industrial and Engineering Chemistry," Anal. Ed., Dec., 1944, pp. 723-727. Some of the newer physical methods are finding wide application in hydrocarbon analyses. Many highly complex problems are greatly simplified by a judicious use of these methods. The author summarizes briefly the advantages resulting therefrom in the analysis of petroleum products.

Donald H. West

J. S. West & Company
Modesto, California

Tells Why They Featured Only Coleman Floor Furnaces:

"We Feel No Other Maker Really Makes A Furnace Truly Designed For LP-Gas!"

"We have handled Coleman LP-Gas Floor Furnaces ever since we entered the liquid gas business. Selecting Coleman from the field was an easy job, because we found nothing else in the same class. In fact, no other manufacturer was interested enough in the business to design a burner truly for LP-Gas. We have sold very few items that gave us such satisfaction as the Coleman Floor Furnaces do. The service on these furnaces is practically nil."

Coleman franchise dealers are being appointed now by America's leading distributors for post-war sales of the Coleman line of Gas Heating Equipment — including Floor Furnaces, Central Heat Plants and Water Heaters. This franchise is awarded to aggressive dealers who can qualify and handle the volume of Coleman business they can easily develop. Write us for the name of your Coleman distributor, who can tell you the complete story of the Coleman opportunity in the waiting billion-dollar home-heating market. Coleman Lamp and Stove Co., Dept. BP-27X, Wichita 1, Kansas.

THE "HOT" NAME IN HOME HEATING

Coleman

THE COLEMAN LAMP AND STOVE COMPANY

WICHITA 1 • CHICAGO 11 • PHILADELPHIA 8 • LOS ANGELES 54 • TORONTO, CANADA

TABLE 1. SHORT-CUT METHOD OF ESTIMATING HEAT LOSSES
Multiplying Factors for Heat Loss Calculations

Type of Building	*Major Qualifications*	*Minor Qualifications*	*Multiply Cubic Contents by†*
Factories or Warehouses 65F. Inside	No Skylights	One Story	5.8
		No skylight in roof	5.3
		Two story	4.3
		Three story	4.0
		Four story	3.8
		Five story	3.6
		Six story	3.4
Public Garages 60F. Inside	All Walls Exposed	Skylight in roof	5.5
		No skylight in roof	5.1
		Heated space above	4.0
	Warm Party Walls on Both Long Sides	Skylight in roof	4.7
		No skylight in roof	4.4
		Heated space above	3.0
	One Long Warm Party Wall	Skylight in roof	5.0
		No skylight in roof	4.9
		Heated space above	3.4
Stores[1] 70F. Inside	All Walls Exposed	Flat roof	6.9
		Heated space above	5.2
	Warm Party Walls on Both Long Sides	Flat roof	5.8
		Heated space above	4.1
	One Long Warm Party Wall	Flat roof	6.3
		Heated space above	4.7
	For Entire Building[1]	No insulation	6.5
		With roof insulation only	6.0
		With roof and wall insulation	5.5
Residences 70F. Inside	First Floor Rooms[2] with Heated Space Above	No storm windows, no wall insulation	5.8
		All storm windows, no wall insulation	5.5
		No storm windows, walls insulated	5.5
		All storm windows, walls insulated	5.1
		Sun rooms and other rooms having an unusually large number of single windows and at least 2 exposed walls	10.0
		Sun rooms and other rooms having an unusually large number of windows, all storm windows, and at least 2 exposed walls	7.0
	Upper Floor Rooms[2] or Bungalow Rooms	Single windows, no insulation in ceiling, flat roof	7.3
		All storm windows, no insulation in ceiling, flat roof	7.0
		Single windows, insulation in ceiling, flat roof	6.5
		All storm windows, insulation in ceiling, flat roof	6.2
		Attic space above, single windows, no insulation in ceiling, eaved roof	6.8
		Attic space above, all storm windows, no insulation in ceiling, eaved roof	6.5
		Attic space above, single windows, insulation in ceiling, eaved roof	6.0
		Attic space above, all storm windows, insulation in ceiling, eaved roof	5.7

Heat Losses Quickly Figured

THE increasing importance to the liquefied petroleum gas dealer of space heating sales opportunities suggests the need for basic information that will aid fieldmen in estimating Btu. inputs for various conditions.

Outside wall space, window and door openings, insulation or lack of it and numerous other factors must be taken into consideration when determining sizes of heating equipment.

A table has been prepared by "Heating and Ventilating" magazine which salesmen can use to good advantage. Copies of this have been prepared and mailed to the trade by the Reznor Manufacturing Co., of Mercer, Pa.

The purpose of Table No. 1 is to provide a quick method of estimating heat loss of buildings of or individual rooms, accurate within 5 per cent of the results obtained by longer methods.

The method is such that it can be used by a service engineer where an estimate of radiation capacity is desired but where highly accurate calculations are not necessary at the time. It can also be used by other engineers for preliminary or checking calculations.

How to Use the Method:

1. Measure length, width and ceiling height, taking account of any shape of floor area other than one simple square or rectangle. Calculate floor area and multiply by ceiling height to obtain cubical contents.
2. Make a rapid scouting survey to observe what the prevailing conditions are so that the proper factor may be selected. See whether there are any party walls, heated space above, flat or eaved roof, storm windows, or skylights.
3. Select proper factor from Table 1 and Table 2.
4. Multiply cubical contents by the factor from Table 1 (and from Table 2 where necessary) and thus obtain the heat loss in Btu per hour.

For conditions in parts of the country where design temperature differentials other than 0° and 70° are customary, the factors from Table 2 are applicable by multiplying the heat loss obtained by using the heat factors in Table 1.

TABLE 2.—CORRECTION FACTORS

Minimum Design Temperature	*Correction Factor*
+ 50 degrees	0.29
+ 40	0.43
+ 30	0.57
+ 20	0.72
+ 10	0.86
0	1.00
− 10	1.14
− 20	1.28
− 30	1.43

Footnotes for Table I (Opposite Page):

† Figures are in all cases Btu. heat loss per cu. ft. of contents. Factors apply only to inside temperatures listed in first column and to 0F. outside temperature.

[1] If building has bad north and west exposures increase heat loss by 10%.

[2] If room has bad north and west exposures increase heat loss by 20%.

How G. I. Joe Can Finance His Postwar Home

THE housing provisions of the G. I. Bill, Title III of the Servicemen's Readjustment Act of 1944, offers the nation's appliance dealers an unparalleled opportunity to sell ranges, refrigerators and other essential operating equipment to ex-G. I. Joe, who is planning to build, buy or modernize a home.

What has the Veteran's Administration (VA) done to smooth the road to home ownership for the veteran? Biggest boon is that he will not have to have a down payment to buy a house or modernize his old house. He can get a private loan that may cover the full purchase price of a home or residential property. A residential property is defined in the Act as "any dwelling consisting of not more than four family units or a combination dwelling and business property, the primary use of which is occupancy by the veteran as his home."

The veteran can choose either of the two following plans, (501) and (505):

Section 501A. He can apply for a single mortgage loan, not to exceed 20 years, from a savings and loan association or bank. The government will guarantee this loan up to $2000 but not to exceed 50%. Since this loan has the double security of a mortgage plus the government guarantee, it may, within the discretion of the lender, amount to 100% of the purchase price. Interest on the whole loan must not be more than 4%.

VA will guarantee the loan if—

1. The proceeds are used to pay for the purchase or construction of a dwelling to be occupied by veteran as his home.

2. Mortgage terms for payment bear a proper relation to the veteran's present and anticipated income and expenses.

3. The property is suitable for dwelling purposes.

4. Purchase or construction cost does not exceed reasonable normal value.

5. The loan appears practicable.

G. I. loans will have plenty of immediate customers for there are already one million World War II veterans, and more are leaving the service at the rate of one thousand a day. The veteran must have

WHAT THE VETERAN CAN DO IN MANY STATES TO SECURE A FULLY EQUIPPED HOME

1. **He can modernize his old house, purchase equipment from his dealer and have it financed under the VA guaranteed modernization loan.**

2. **He can contract to buy an old house, purchase equipment from his dealer and have it financed as part of the VA guaranteed purchase money mortgage.**

3. **He can buy a new house, purchase equipment from his dealer, and have it included in the VA guaranteed purchase money mortgage.**

4. **He can build a new house, purchase equipment from his dealer and have it included in the VA guaranteed purchase money mortgage.**

served at least 90 days, unless he was disabled earlier, and must not have been dishonorably discharged. He must apply within two years after discharge from the service or within two years after the end of the war, whichever is longer.

Section 501B. Provides for a loan guarantee if it is for the purpose of making repairs, alterations or improvements to, or paying delinquent indebtedness or taxes on, residential property owned by the veteran and used as his home. "Alterations or improvements" means any structural change in, or additions to, the property, including heating and other equipment that becomes fixtures (such as ranges, refrigerators, etc., depending on local custom and fixture law) or the replacement of either, or operations of a protective nature, which will increase the usefulness of the property as a home.

The loan must bear a proper relation to the value of the property.

Section 505. Under this second plan, the veteran can apply for two loans. The primary loan would be a 20-year, 80% FHA insured loan. VA will guarantee a secondary loan amounting to 20% of the purchase price or a maximum of $2000. Interest on the secondary loan must not be more than 4%.

Whichever plan is used, the lender will call in a private appraiser, selected from a VA approved list, to set the "reasonable normal value" of the property. This appraisal will be submitted with the application for a VA guarantee.

The veteran will be able to buy ranges, refrigerators, etc., and get them financed under the VA guaranteed loan, provided it is the practice of the State in which the property is located to regard such equipment as part of the real estate. VA takes the realistic view that most former servicemen are going to have a hard row to hoe in stretching out their earnings over the immediate postwar period and should have as much equipment as possible put under the long term mortgage when they buy a house; whether it is a new structure or a reconditioned one.

The dealer should instruct the veteran to include a description of the household equipment by name, manufacturer, model number and price in the plans and specifications (either for the construction of a new house or the remodeling of an old one) submitted by his lending institution to the Veterans' Administration. When the loan is approved and the equipment installed, the dealer will receive payment from the lending institution.

ICC Approves Non-ICC Cylinders for Intrastate Trade

In an order dated Jan. 25, the ICC announced the following amendments to the Regulations for Transportation of Explosives and Other Dangerous Articles, which "shall be and remain in force on and after April 25, 1945, and shall be observed until further order of the Commission."

Because of the present emergency and until further order of the Commission, non-ICC specification containers used for liquefied petroleum gases prior to June 15, 1943, under laws, rules, or regulations of the states in which they are located, and so long as they are maintained in safe transportation condition, are authorized for use in the transportation of those gases by common, contract, or private carrier by motor vehicle, in intrastate commerce only, within those states. All other requirements of the Commission for such transportation must be complied with.

This authority does not apply to cargo tanks of tank motor vehicles.

Liquefied Petroleum Gas Price Ceilings

Office of Price Administration, Washington, D. C.
Amendment No. 8 to Revised Maximum Price Regulation No. 137
Effective January 23, 1945

OPA trade bulletins are written to help you understand and follow new or amended price regulations. They cover only the main points of the regulations and do not take their place. If this bulletin does not answer all your questions, ask the Price Panel of your War Price and Rationing Board or your OPA District Office for further help.

Who Is Covered

Service stations, retailers and anybody else who sells liquefied petroleum gas direct to consumers in single lots of 500 gallons or less. (For sales or more than 500 gallons see Maximum Price Regulation No. 88.)

How to Find Your Ceiling Price

If you were selling petroleum gas in the same area in March 1942, your ceiling price is the highest price you charged then for the same grade to a purchaser of the same class.

If you cannot price this way, you must apply for a ceiling price to the Price Executive, Petroleum Branch, Office of Price Administration, Washington, D. C. You must put in your application:

(1) The tentative maximum price you propose;

(2) Why you cannot use the March 1942 price;

(3) The ceiling prices of other sellers in your class and your locality for the same product, or, if there are no such ceiling prices, your own and other sellers' ceiling prices in the three nearest localities.

You can make a sale before applying for a ceiling price, but in that case you must file an application within 15 days after the sale and apply for the sale price as your tentative ceiling price.

You will get a letter from OPA, which will either approve your suggested ceiling price or set another one.

NOTE: In Alcorn County, Miss., the ceiling price for all grades of liquefied petroleum gas sold to consumers in lots of 500 gallons or less, is 12c per gallon.

Posting

You must post the ceiling prices for each grade of liquefied petroleum gas to those purchasers to whom you make the bulk of your sales. Your customers must be able to see and read the poster easily. The poster must have "CEILING PRICES," "OUR CEILING" or "MAXIMUM PRICES" on top, and must list each grade with the ceiling price opposite each grade.

QUIZ — Behavior of Gases

• *This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: The Bottled Gas Manual, Handbook Butane-Propane Gases.*

Questions	Answers
1 **What happens if pressure is applied to a fluid (gas or liquid) in a closed container?**	When pressure is applied to an enclosed fluid it is transmitted equally in all directions to every part of the fluid and to the interior walls of the containing vessel.
2 **When pressure is exerted upon a gas, what effect does it have upon its volume, and by what law is the result known?**	At a constant temperature the volume of a given weight of gas varies inversely as the pressure sustained by it. This is known as "Boyle's Law." In other words, if the pressure is doubled, the space required to store it is cut in half.
3 **What is meant by the density of a substance?**	The density of a substance is the number of units of its mass contained in a unit of volume. Illustration: A cubic foot of a high density material weighs more than a cubic foot of a low density material.
4 **Why is it desirable to know the density of materials, gas in particular?**	Because from known densities it is possible to determine relative weights. Densities are expressed differently in various measurement systems but relative weights would be the same.

5

What are the densities of propane and butane?

Density of liquid propane: 4.23 lbs. per gal. Density of liquid n-butane: 4.86 lbs. per gal. Density of gaseous propane at 60°F. and 14.73 lbs. per sq. in. Absolute: 116.2 lbs. per 1000 cu. ft.
Density of gaseous n-butane at 60°F. and 14.73 lbs. per sq. in. Absolute: 153.1 lbs. per 1000 cu. ft.

6

What is meant by the specific gravity of a solid and a liquid?

The specific gravity of a solid or liquid body is the ratio between its weight and the weight of an equal volume of water.

7

What is meant by the specific gravity of a gas?

The specific gravity of a gas is the ratio between its weight and the weight of an equal volume of air.

8

What is the practical difference between density and specific gravity?

Density is a determination of the relative weights of materials and varies according to the materials considered and the systems or units used. Specific gravity compares all matter to one of two standards, water or air, and is therefore always the same regardless of the systems or quantities used.

9

What is the difference between gage pressure and absolute pressure?

The difference between gage pressure and absolute pressure is the pressure exerted by the atmosphere which is 14.73 lbs. per sq. in. at sea level.
Example: If the gage pressure is 30 lbs. per sq. in., the absolute pressure is 44.73 lbs. per sq. in.

10

What is a standard cubic foot of gas?

A standard cubic foot of gas is that quantity of gas which, at a temperature of 60°F. and 14.73 lbs. per sq. in. pressure Absolute, occupies 1 cu. ft.

SUBJECTS TO BE COVERED IN FORTHCOMING ISSUES:
● Heat and Temperature ● Tanks and Cylinders ● The Simple Regulator ● Regulator Manifolds ● How to Buy and Install Equipment ● Pipe Lines ● Testing for Leaks Burner Adjustment ● Thermostats, Pilots and Pilot Controls ● Burner Design and Application ● Appliance Conversions.

L-P GAS PROFIT or LOSS

. . . begins with storage

The Hortonsphere shown at right is 16 ft. in diameter and is designed for 250 lbs. per sq. in. pressure. It is used by the Butane Corporation at Phoenix, Arizona, for storing propane.

● Your profit lies in the last few gallons of L-P gas unsold . . . or lost through evaporation. When your storage equipment is designed . . . like a Hortonsphere, to minimize volumetric loss . . . you add dollars to your sales.

Whether you serve your customer with butane-propane mixtures or straight propane, there is a Hortonsphere to meet your requirements . . . safely and efficiently. For further details on how Hortonspheres can save you money and increase profits, write for full details.

In addition to Hortonspheres of up to 20,000 barrels capacity, we also design and build pressure vessels and cylindrical tanks of various types.

CHICAGO BRIDGE & IRON COMPANY

Birmingham, 1.....1519 N. Fiftieth St.
Chicago, 4.....2459 McCormick Bldg.
San Francisco, 5.....1089 Rialto Bldg.
Cleveland, 15.....2271 Guildhall Bldg.
Tulsa, 3..... .....1657 Hunt Bldg.

Los Angeles, 14.....1468 Wm. Fox Bldg.
New York, 6.....3451 Broadway Bldg.
Philadelphia, 3....1700 Walnut St. Bldg.
Washington, 4.....703 Atlantic Bldg.
Houston, 1.....5647 Clinton Drive

Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PENNSYLVANIA

One Way to Control Butane Fires

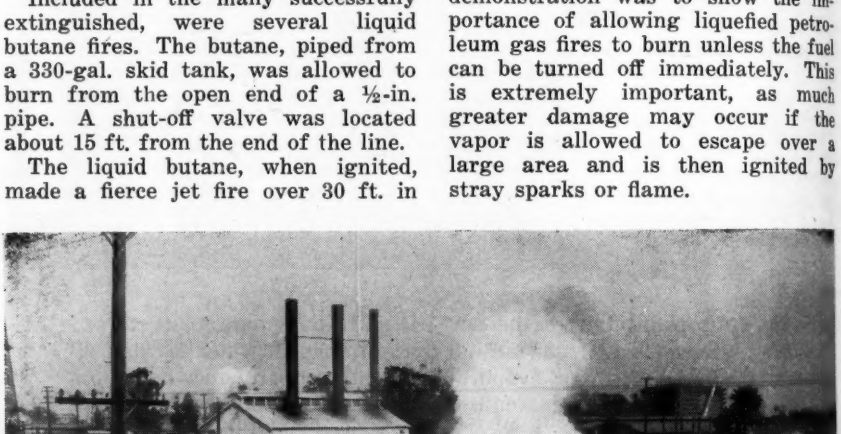
EXTINGUISHMENT and control of burning liquid butane was a feature at a demonstration of fire fighting equipment held in Los Angeles Jan. 24 by the Snowden Chemical Co.

The demonstration was attended by representatives of oil companies, fire departments, and the army and navy, all interested in plant protection and the control and extinguishment of oil and liquefied petroleum gas fires.

Included in the many successfully extinguished, were several liquid butane fires. The butane, piped from a 330-gal. skid tank, was allowed to burn from the open end of a ½-in. pipe. A shut-off valve was located about 15 ft. from the end of the line.

The liquid butane, when ignited, made a fierce jet fire over 30 ft. in length. It was extinguished with a No. 15 "Dugas" extinguisher within a few seconds. The fire was again ignited and, after burning several minutes, was again attacked with one No. 15 extinguisher. By this time the grass on the ground was burning over an extended area and the spreading vapor would reignite. When two No. 15 Dugas extinguishers were used, making it possible to cover a larger area at once, all sparks and burning grass were immediately extinguished and the butane fire put out. It was then possible to shut off the escaping butane at the valve.

One of the main objects of the demonstration was to show the importance of allowing liquefied petroleum gas fires to burn unless the fuel can be turned off immediately. This is extremely important, as much greater damage may occur if the vapor is allowed to escape over a large area and is then ignited by stray sparks or flame.



Demonstration showing control of liquid butane fire. The fire has just been extinguished, leaving a cloud of the extinguishing agent, or powder. This forms a carbon dioxide gas which has a smothering effect upon the fire, shutting off the oxygen.

GREATER BROODER PROFITS WITH GAS

I HAVE said that gas brooding is superior to any other method. This statement is substantiated by the facts, but before we can appreciate them it is necessary to understand the fundamentals upon which gas brooding is based.

For some time a revolution in the brooding business has been taking place. However, many brooder operators still cling to old fashioned practices. Yesterday's method was to keep a brooder house hot and almost hermetically sealed. Why it was thought that growing chickens required less fresh air than other domesticated forms of life nobody has yet explained satisfactorily.

Certainly, past methods of brooding will not stand the test of logic, and results bore out the contention of the theorists that something was radically wrong in the old brooding methods. Mortality figures were high, often being in excess of 10%. The percentage of weight gained in relation to grain put into the feed hopper was low. The expense of heating brooding houses was prohibitive.

Some operators began to reason along common sense lines. They speculated upon the fact that hothouse flowers are beautiful but lack stamina. One does not bring up healthy children in overheated rooms. Plenty of exercise in fresh air creates a healthy appetite. The quantity of food eaten has a definite relation to weight gained if the food is of the proper kind. A plant or person is acclimated to specific living conditions by being gradually exposed to them. If these things are true of plants and human beings, why shouldn't they also be true of chickens?

Thus reasoned the pioneers of cold house brooding, and they acted accordingly. Not all of the first experiments were successful but they bore promise. There was much to be learned of an untried method, but if Mother Hen could raise a healthy flock in the chill of spring, allowing the chicks to scratch and roam until the cold drove them to the warmth of her feathers, why couldn't man direct his inventive genius to approximate these conditions?

By C. C. TURNER
Special Representative,
Butane-Propane News

The Old Way and The New

Old Method	Results
Chicks forced to undergo a constant and comparatively high degree of heat.	Chicks lacked stamina.
Entire brooder house kept hot.	Became easy victims of cold when allowed outside.
Fresh air kept out to conserve heat and fuel.	No incentive to exercise.
Fuel expense excessive.	Poor appetites. Small gain in weight in proportion to grain fed.
Mortality rate high—10%.	High unit cost.

New Method	Results
Chicks allowed to seek degree of heat desired, as they would if brooded by Mother Hen.	Chicks feather out quickly. Are strong and healthy.
Only brooder area kept warm.	Take lots of exercise.
Plenty of fresh air in brooder house.	Eat better, grow faster.
Direct draft averted by baffle ventilators.	Brooder period shortened.
Mortality rate low—3%.	Low unit cost.

The modern gas brooder in a well ventilated and unheated brooder house is the result of this reasoning.

Because it approximates Nature's own way, gas brooding is more successful than other methods. In fact, man's method is an improvement over old Mother Hen with her limited brain capacity. Mortality rates have been cut to an average of less than 3%. Chicks feather out more quickly, and this means shortening of the brooding period. They gain weight more rapidly, and this means less money spent for food and a quicker return upon investment. In addition to these immediate cash advantages of gas brooding are those of convenience or mechanical advantage. These will be discussed as we make comparisons with other types of brooders.

Fundamental "Musts." There are some "musts" which attend gas brooding, and both you and your customer *must* observe them with religious fervor in order to obtain satisfactory results. Unheated brooder houses *must* be ventilated to the outside if the litter is to be kept dry. Ventilating openings *must* be baffled in order to break up direct drafts.

If your prospect insists on no cross ventilation, or wishes to try heating the brooder house with the brooder, you had better drop right out of the picture immediately, for the results will not be satisfactory, the cost of operation will be pro-

MASTER-METERING

Through 30 miles of mains

Broad Creek Village, developed and managed by the FPHA, will shelter more than 3000 families of Government employees or those engaged in essential war industries. Modern Gas Company, Inc. installed the LP-Gas system and provides the service.

At the Broad Creek Village housing project in Norfolk County, Virginia, domestic LP-Gas is distributed over an area of 1¼ x ¾ miles at approximately 10 lbs. per sq. in. pressure.

Accuracy of the over-all gas measurement is essential to the proper maintenance of total cost-control figures. The ability of the key meter to take care of itself without pampering is another important factor in its selection.

This master meter—housed in the control building—is the Metric-American 500-B Ironcase LP-Gas Meter, equipped with Base Pressure Index and Volume and Pressure Gage. A Reliance-American H.P.C. governor also is employed in flow control.

* * *

The several types of Metric-American Ironcase Meters, a "heavy-duty" line adapted to handling various different gases, are covered in our Catalog EG-40. Meters of all sizes and pressures.

2033

METRIC METAL WORKS • ERIE, PENNSYLVANIA

AMERICAN METER COMPANY

INCORPORATED ESTABLISHED 1833

hibitive, and the LP-Gas business will receive a black eye.

Other Fundamentals. There are other requirements for successful gas brooding which are perhaps best stated by the A. R. Wood Manufacturing Co., a pioneer firm which manufactures an excellent line of radiant gas brooders. Here is what this firm says to do:

1. Start chicks with an 86-degree **floor** temperature.
2. The second day after feeding, reduce hover temperature two degrees.
3. Reduce hover temperature two degrees every fourth day.
4. Keep temperature at night so the birds will distribute themselves evenly under the hover. If they crowd toward the center, it is a sign of too little heat. If they crowd toward the outside, it is a sign of too much heat.
5. A circle of 26 or 28 gage galvanized iron about 12 in. high should be placed around the brooder about 1 ft. from the edge for the first four or five days. After that, enlarge this circle during the day time, drawing it in to its original position at night. After 8 or 10 days it can be entirely removed unless weather conditions are too severe.
6. During extremely cold weather place food and water close to the edge of the brooder so that the chicks will not have to go out from the warmth to feed. This will also keep the food and water from freezing.

With this superficial knowledge of the principles of gas brooding we can establish a basis for comparison with competitive fuels. The poultryman is interested in the difference between what he receives for his products and what it costs to produce them; in one word, *profit*.

What he receives for his products is largely determined by the law of supply and demand. His costs are a complex total of actual expenditures for materials, interest, depreciation, taxes, labor, transportation, production losses, and general operating expenses, which include overhead and repairs.

All of these classifications are affected by his method of doing business and consequently by his method of brooding. Let us for the moment forget all of these but the cost of materials. In brooding, the first material expense would be for fuel. As the net cost of each chick placed upon the market as a finished product is affected by the number of chicks it is necessary to start in a brood to produce a certain number at the end of the brooding period, the factor of mortality enters into the cost of materials. As the value of birds is in proportion to their weight, the cost of food to produce that weight is another item in the cost of materials. We therefore have the following for immediate consideration:

1. Actual cost of fuel per chick.
2. Mortality losses.
3. Food consumption in relation to gain in weight during the brooding period.

If it may be said that our agricultural colleges do not give us applicable cost data because their determining experiments are con-

ducted under ideal, and therefore unreal, conditions it may also be said with equal truth that precious few poultrymen keep accurate cost records so that fair comparisons between brooding methods can be made.

Experiments Must Be Accurate

Inasmuch as the poultry business is highly competitive, the poultryman must operate under conditions which approach the ideal if he is to survive, and therefore carefully conducted college experiments must be near the truth.

I have confidence in such tests as have been conducted by the University of New Hampshire. Here, under severe spring conditions during 6 weeks from March 24 through May 5, the fuel consumption was 0.258 lbs. of propane per chick brooded, mortality was 2.85%, and weight was increased 10.78 times the original. Of the total weighed

CHICKENS AND BROILERS HATCHED IN 1943 ACCORDING TO RECORDS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.

Arranged by States in Order of Their Production.

Numerical Order	State	Chickens Hatched in Thousands	Broilers Hatched in Thousands	Total Hatched in Thousands	Numerical Order	State	Chickens Hatched in Thousands	Broilers Hatched in Thousands	Total Hatched in Thousands
1	Iowa	290520	-------	290520	25	Miss.	57625	2078	59703
2	Minn.	215034	-------	215034	26	Md.	34162	21000	55162
3	Ill.	183917	7680	191597	27	Mass.	51401	3159	54560
4	Pa.	169986	4875	174861	28	Ala.	50582	-----	50582
5	Texas	151735	10450	162185	29	N.J.	46118	2325	48443
6	Mo.	154506	2940	157446	30	La.	38334	1540	39874
7	Ohio	150564	3960	154524	31	S.C.	34988	3750	38738
8	Neb.	148832	-----	148832	32	Conn.	26153	11140	37293
9	Ind.	142199	6325	148524	33	Wash.	33928	1300	35228
10	Kans.	123445	972	124417	34	W. Va.	25057	7000	32057
11	Wisc.	121077	1472	122549	35	Colo.	30719	-----	30719
12	N. Y.	108065	5850	113915	36	Maine	24696	1260	25956
13	N. C.	92001	13500	105501	37	Fla.	17382	5000	22382
14	Mich.	103319	1000	104319	38	Oregon	21383	390	21773
15	Ky.	94897	1150	96047	39	N. H.	20140	1440	21580
16	S. Dak.	91404	-----	91404	40	Mont.	20993	-----	20993
17	Va.	65601	22050	87651	41	Idaho	18267	-----	18267
18	Okla.	79460	2750	82210	42	Utah	11319	-----	11319
19	Cal.	69282	11480	80762	43	Vt.	9275	1230	10505
20	Tenn.	72025	2500	74525	44	Wy.	7492	-----	7492
21	Ga.	56860	16000	72860	45	R. I.	4996	210	5206
22	Ark.	57247	14080	71327	46	Ariz.	4224	793	5017
23	Dela.	11541	59000	70541	47	N. Mex.	4674	----	4674
24	N. Dak.	60972	-----	60972	48	Nev.	1754	----	1754

feed put into the hoppers 32.9% was converted into actual increase in bird weight.

Electric Versus Gas Brooding. Manufacturers of electric appliances have invaded the brooding field. In this connection, experiments with electric brooding, which were made by this same university with no thought of comparison with gas brooding, are of great interest.

Electric energy of 1.24 kilowatt hours per chick was consumed. Mortality was 6.71%. Weight increased but 7.94 times the original, and feed was converted into but 28.7% actual increase in bird weight. A tabulation of results in comparison with the gas brooding test previously mentioned brings out some points of great interest, as shown in Table 1.

A point is not proved by any one test, but when several tests give similar results it may be accepted as a fact. Reports from several universities as well as large brooding operators bear striking resemblance, and the University of New Hampshire tests are an average of those which I have studied. It is significant that in these two tests, which were conducted in different years without any idea of comparison, the same number of Btu.'s per pound increase in weight were used.

On the surface it would appear from this that results were equal, but a further study of Table 1 shows that the food cost per pound

TABLE 1. COMPARISON OF GAS AND ELECTRIC BROODING EXPERIMENTS CONDUCTED AT THE UNIVERSITY OF NEW HAMPSHIRE

Breed: New Hampshire Reds in Both Instances

Item of Cost	*Classification*	*Gas Brooding*	*Electric Brooding*	*Difference*
FUEL	Fuel consumption in Btu.'s per chick brooded.....	5581	4230	1351
	Increase in live weight, pounds	0.9426	0.7275	0.2151
	Btu. consumed per pound of weight increase	5814	5814	None
FOOD	Pounds consumed per chick	2.857	2.534	0.323
	Pounds of food consumed per pound increase in weight	3.0309	3.4831	0.4522
MORTALITY	Chicks started in brood...	350	715	....
	Chicks alive at end of brooding period	340	667	....
	Chicks lost during brooding period	10	48	....
	Percentage of brood lost..	2.85%	6.71%	3.86%

increase in weight was greater under electric brooders than under gas brooders. Also, the mortality rate under electric brooders was more than twice as high. Why?

A study of the graph (Fig. 1) of under the hover temperatures gives the answer. Chicks hovered under the electric brooder burned up more food energy and lowered their resistance by combating widely fluctuating temperatures. To those who would discount this factor because cold house gas brooding by gas also provides a wide latitude of temperatures in which chicks may roam, I point out that the body temperature of old Mother Hen to which the flock may return at will always remains the same.

Carry this thought into your own personal experiences. If you are dressed for a normal house temperature of 68°F., your chances of catching cold are less if you can always return to that temperature for warmth instead of to rooms heated to variations of nearly 50 degrees. This wide fluctuation of temperatures is a fault common to electric brooders. True, the fluctuation could be decreased by intricate control devices, but even then it could not approach the even heat made possible by the gas thermostat,* and the cost of each brooder would be increased beyond the possibility of universal acceptance.

*When a gas thermostat demands heat, the burner response is instantaneous. When an electric thermostat demands heat, the heating element must first come up to a high temperature before its response is effective. In the meantime, the temperature beneath the hover continues to drop.

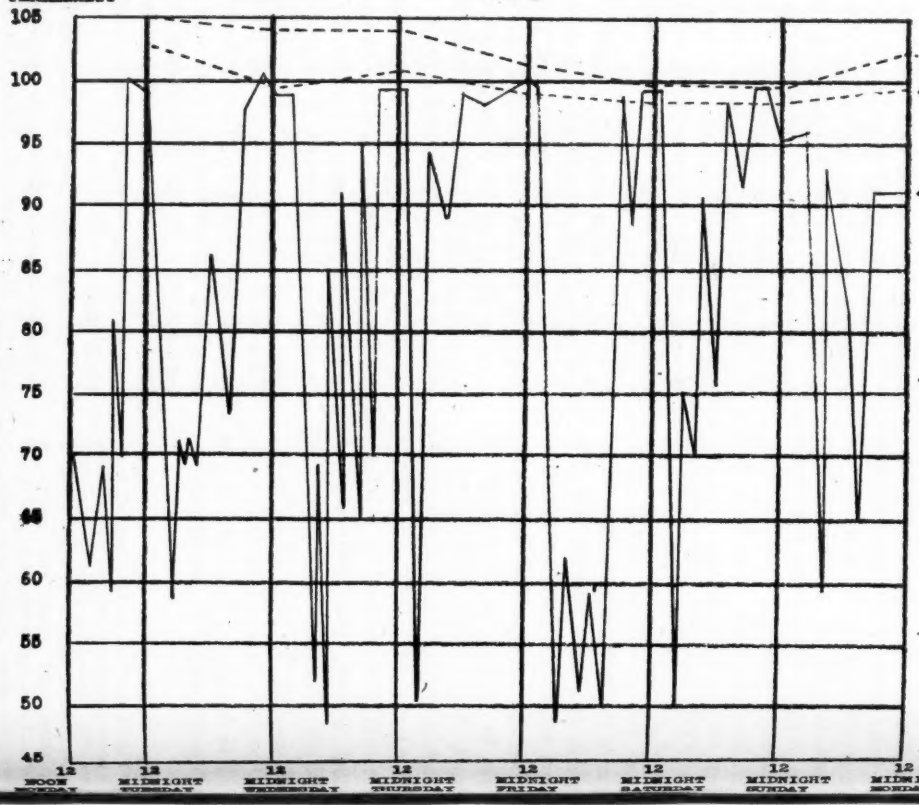
First Cost. With two strikes against it in the way of food cost and mortality, one might think that the electric brooder would be out of the picture entirely, but following their sales tactics of dispersing mystical generalities as in other instances, the electric appliance manufacturers are able to inveigle the gullible into purchasing their brooders. The cost of the brooder itself is approximately the same as that of a gas brooder.

Installation Cost. The cost of installation may be more or less, depending upon what existing facilities are for current supply. Perhaps I should not point out that one cause of unsatisfactory operation with electric brooders is drop in voltage due to lines being overloaded or too long. If it is necessary to re-wire a property in order to take care of electric brooders, then installation costs are definitely in favor of gas brooders, and particularly so when a group of them may be supplied by a central regulating equipment with a battery of cylinders or a large supply tank.

Labor Cost.. Due to the fact that the litter beneath an electric brooder becomes damp more quickly than beneath a gas brooder, it is necessary to change it more frequently. This is due to absence of the proper heat and draft conditions necessary to drive off the moisture which accumulates from the droppings. This extra labor costs money and makes electric brooding more costly than gas.

The labor involved in brooder removal, and attendance of or cleaning of the brooder house is the

FIG. 1



COMPARISON OF GAS AND ELECTRIC BROODING TEMPERATURES OVER A PERIOD OF ONE WEEK.

Electric temperatures taken from page 8 of Station bulletin No. 46 issued by the University of New Hampshire.
Gas temperatures taken from later report of tests made in LP-Gas Brooding by the same University.

VERTICAL SCALE:- 1" = 10°F.

HORIZONTAL SCALE:- 1" = 24 hours.

same, for both brooders are designed so that they may be quickly pulled up against the ceiling by a block and tackle arrangement when it is necessary to move them.

Dependability. That the electric brooder is less dependable than the gas brooder is a certainty. Its dependence upon a power house far removed introduces the hazard of transmission line troubles and current interruption.

Electric thermostats are less dependable than gas thermostats, for contacts frequently corrode or burn, thereby causing trouble. Electric heating elements have the disagreeable habit of burning out, whereas gas burners last indefinitely. Failure at any one of these points can cause the loss of an entire brood.

Maintenance Expense. As electric thermostats are less dependable than gas thermostats, and electric heating elements frequently burn out, replacement and repair of these essential parts costs money which the gas brooder operator rarely if ever has to undergo. Maintenance of electric brooders is definitely higher than that of gas brooders.

Mobility. Like a dog on a leash, the electric brooder is tied to its master, the power house, with a string which is better known as the transmission line. If an electric brooder is to be moved, power lines must first be run to the new location. This may be a serious handicap in moving an electric brooder to a location farther out on the range.

A gas brooder and house may be self-contained in that it may have its individual gas installation. Brooder, house, and installation may be moved to any point in the universe, with dependence on the outside world being the occasional transportation of a supply of LP-Gas fuel. On the score of mobility we must record another definite point in favor of gas brooding.

Safety. My remarks on this subject are confined to that bogey which the electric industry is always trotting out when it is up against competition from igneous fuels. That bogey is the alleged hazard of an open flame. The flame in a gas brooder is baffled, or screened, so that it is impossible for sparks or excess heat to contact inflammable substances. Against this we have knowledge that the nastiest fire to combat is the internal one such as may occur in the inflammable insulation of electric wires when they become overloaded or short circuited.

Then again, lightning has been known to come in on lines leading to brooder houses, causing disastrous fires. Short circuits have been caused by worn insulation, defective wiring, or a careless employe placing a metal tool across unprotected connections or terminals.

The record of gas as a cause of fires is much better than that of electricity, according to the records of the National Fire Protection Association. It can be stated definitely that experience has demonstrated the gas brooder to be safer than the electric brooder.

Adaptability. By this word is meant the ability to carry on under unusual circumstances other than those already covered under

TABLE 2. COMPARATIVE ADVANTAGES OF GAS AND ELECTRIC BROODERS

Item of	*Classification*	*Favorable to LP-Gas*	*Equally Favorable*	*Favorable to Electricity*
EXPENSE	Purchase price		X	
	Installation cost		Possibly	
	Fuel consumption per pound increase of bird weight		X	
	Mortality	X		
	Food consumption in relation to gained weight	X		
	Operative labor	X		
	Litter replacement	X		
	Maintenance and repairs	X		
MECHANICAL SUPERIORITY	Dependability	X		
	Mobility	X		
	Safety	X		
	Adaptability	X		
SUMMARY		9	3	0

"Mobility." The gas brooder has sufficient potential input so that it can function satisfactorily under the severest climatic conditions. This is not always true of the electric brooder.

In the event of thermostat failure, that on a gas brooder may be made inoperative and a fairly even temperature maintained by manually regulating the flow of gas to the burners. This would be extremely difficult to accomplish with the electric brooder because of the impossibility of varying the current input except by the introduction of resistance, and that is something beyond the ability of the average operator. The only alternative would be constant attendance, turning the current on and off, in an attempt to even out the fluctuations of a thermometer.

In event of a defective gas burner, it may be cut out and the entire load assumed by the remaining burners. An ingenious mechanic could construct an emergency burner which would serve the purpose until a new one could be procured. This would be much more difficult, if not impossible, to accomplish with the electric brooder.

Low gas pressure due to lengthy pipe lines or lines that are too small can be quickly and cheaply remedied by stepping up the pressure at the regulator and installing individual appliance regulators at each brooder.

There is but one remedy for overloaded electric lines, and that is to completely replace them with larger wires of sufficient capacity. If the transformer serving a certain area is subjected to overloads which

cause reduced voltage, then the power company must be persuaded to invest in a larger transformer. Perhaps they will do this and perhaps they won't.

Summary. One can better visualize the competitive picture from the evidence in tabular form in Table 2. The mental picture thus gained is overwhelmingly in favor of gas brooding as against the electric method. Electric competition should be easily overcome if we know our facts and apply them. Why not get busy now and grasp this business which belongs to you by all reasons of economics and logic? Or will you allow this valuable gas load to go the way of gas lights and gas incubators? It is up to you!

(To Be Continued)

NGAA Cancels Annual Meeting To Comply with ODT Request

The board of directors of the Natural Gasoline Association of America, at a recent meeting, voted to postpone indefinitely the 24th annual convention of the Association, which was originally scheduled for April 11-13, in the Baker hotel, Dallas.

This move was made in compliance with the request of the Office of Defense Transportation that all trade groups aid in the over-all transportation problem by canceling meetings.

In lieu of the convention, a special board of directors meeting will be held to transact such annual business as is required and to consider matters of policy which may affect the industry throughout the year. No date for this small group meeting has been announced.

PRODUCTION AND DISTRIBUTION OF LIQUEFIED PETROLEUM GASES IN UNITED STATES FOR NOVEMBER, 1944

(Thousands of Gallons)

Production:	Nov.	Oct.	Nov.	Jan.-Nov.	
	1944	1944	1943	1944	1943
Isobutane at natural gasoline and cycle plants	18,690	18,312	17,346	192,276	151,998
Other LP-Gases at natural gasoline and cycle plants	95,718	87,066	72,240	860,874	751,044
Total	114,408	105,378	89,586	1,053,150	903,042
Demand:					
LP-Gases and benzol used at refineries	58,296	59,766	39,858	548,226	418,530
LP-Gases for fuel	47,292	44,226	39.144	474,306	366,156
Total	105,588	103,992	79,002	1,022,532	784,686
Stocks (end of Month)					
LP-Gases	47,334	44,394	42,336	47,334	42,336

POWER

Survey Shows Increasing Need For Engine Conversions

By PAUL LADY

FOR many months, conversion of internal combustion engines to butane or propane has been virtually at a standstill. Interest in these fuels for power has not lessened, however, and demand for installations has been on the increase.

With many sound reasons backing their decisions, government officials have refused to grand permission for new conversions. They have granted only a few for the most essential trucks, and have limited those to the use of propane.

In those cases where installations have been allowed, burden of proof that the installation is essential rests with the individual desiring it. Although it may take time to get the information necessary for approval, if the installation is justified, it can be had.

Two things must be established before the Petroleum Administration for War or the Office of Defense Transportation will give consideration to a request for an engine conversion. First, the applicant must prove that propane will be used for fuel. In so doing, he must establish his fuel source. Second, it must be shown that the owner does not plan to increase the mileage already set up for the vehicle. A desire to drive more miles is not sufficient reason for changing to propane.

Although there has been little change in the overall picture, and the chance for getting approval for an installation has grown less in some sections where the fuel supply is critical, there has been a more liberal policy established in sections where the fuel supply, storage and transportation is less acute. In these areas, the governing boards have been more liberal and have allowed power installations to be made. It should be remembered, though, that conditions are constantly changing and that no ruling will necessarily remain the same.

From many reliable sources comes the word that in certain areas there now exists an excess supply of propane. According to reports, this supply continues to increase but there seems little chance that any appreciable amount of it will be used by existing installations or that the amount produced will decrease.

This condition does not exist in regard to butane. Supply of this fuel continues to be short and there

seems small chance that this condition will change. In fact, it may grow more scarce as larger quantities of butane are used in production of rubber and high octane gasoline.

For these reasons everyone interested in the use of liquefied petroleum gas as internal combustion engine fuel must think only in terms of propane. And they must consider only the most essential conversions—on trucks or engines that are important to the war effort.

Another factor has entered this changing picture in the past few months and may soon become one of the truly important developments of the year for the power division of the liquefied petroleum gas industry.

It stems from the ever-mounting demand for "cutter stock," including diesel oil, by the fighting forces of the United States and its allies. The call for more oil of this grade is on the increase and the supply seems to be reaching the limit. This demand makes saving of the middle distillates imperative. Thus, it follows that government officials will do all within their power to curb demands for diesel.

Considering the surplus of propane—at least in many sections—and the shortage of diesel oil, the case for propane installations grows increasingly important.

Some of the most important factors to consider are transportation, storage and utilization equipment. All of these demand material, manpower and planning. Knowing this, no great number of installations may be immediately expected, but because the plan has merit it should be investigated.

Many thousands of trucks and stationary engines operate on diesel oil today. All are working at capacity and using greater quantities of fuel than ever before. Total consumption is tremendous.

If part of this demand for diesel oil could be shifted to another fuel, which is in less demand, much good could be accomplished. If a fuel that has a recognized surplus—as in the case of propane—could be substituted, everyone would benefit.

Tractor burning LP-Gas pulls scraper on big road-building job in the Midwest.

The Tandem is Out!

Modern as tomorrow is the new ALGAS HEAT EXCHANGER! Provides complete conversion of LPG to vapor. Eliminates need to "tandem" up two or more small heat exchangers to handle heavy duty engines. ONE ALGAS HEAT EXCHANGER handles from 75 to 450 H.P.

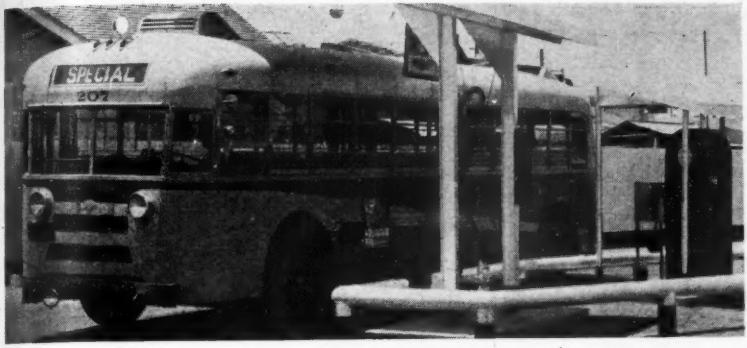
SERVICE AVAILABLE THROUGHOUT U. S. A.

1109 South Santa Fe Avenue — *Los Angeles 21, California*

ALGAS

AMERICAN LIQUID GAS

LOS ANGELES CORPORATION CHICAGO



This is one of many LP-Gas-burning passenger buses of the Lang Transportation Co., serving Long Beach, Calif.

A number of diesel-to-propane conversions have been made and after long operation they have proven practical. Many are operating today in various sections of the country and are proving that propane is ideally suited to these heavy duty engines. Some enthusiasts will say that they operate far better on propane than on diesel.

The necessary equipment or "kit" has been developed by a Los Angeles firm, Sammons and Sons, for the conversion of the Cummings engine (type H and L) from diesel to liquefied petroleum gas. Government restrictions have curtailed the manufacturing of this equipment but it follows that the ban would be lifted should the government decide to allow an increase in volume of conversions.

Costs vary, in accordance with the age and condition of the engines. It is sufficient to know that the cost of conversion is no greater, and in some cases is less, than the regular cost of a diesel engine overhaul.

Data on the operation of diesel engines on propane conclusively shows that there are many factors in favor of use of this fuel. It works to utmost efficiency in these heavy duty engines, taking full advantage of the extremely high compression ratio. (Conversion practices call for a cut in the compression ratio.)

Cost of the fuel is no more and in some areas less than diesel oil. More power is possible through the use of propane, due to the reduction of heat losses. And, most important of all, the reduction of motor wear through the use of propane increases the life of the motor by many times its usual span. This is due, of course, to the elimination of carbon and the lack of dilution of motor oil.

The case for propane as a fuel for diesel engines is strong. It remains to be seen whether this seemingly natural development can take place. There are many factors to be considered. Some are complex, but if the demand is great enough, the problems will be overcome.

Pacific Coasters To Vote By Mail

ACCORDING to an announcement by L. C. Roney, chairman of the Pacific Coast Section, Liquefied Petroleum Gas Association, all meetings for the immediate future have been canceled. This move is in accordance with the ruling recently announced by the Office of Defense Transportation prohibiting meetings and conventions of more than 50 people.

L. C. RONEY

An election for new officers for the Pacific Coast Section will be held by mail, according to Mr. Roney. It will be conducted from the association headquarters in New York.

Future meetings of the section will depend upon action by ODT. If a change in policy is announced before the end of the year, meetings will be held on the West Coast. Mr. Roney also stated that he hoped to be able to meet with small groups throughout the Pacific Coast area during the coming year, providing he held office and conditions permitted such gatherings.

Verne Snodgrass, Rejoining Century, Sees Conversion Boom

Verne Snodgrass has returned to the employment of Century Carburetor Co., with headquarters in Lynwood, Calif., after an absence of more than two years. He has been named vice president in charge of sales.

Mr. Snodgrass has been contacting dealers since his return, more than two months ago, and he reports that there is considerable interest in engine conversion.

The activity in this division of the industry, he believes, will be greater when government restrictions are removed than in the past. He states that many dealers, never before interested in power installations, are eager to include LP-Gas conversions as a part of their service as soon as possible.

California Code Hearings Will Be Held in April

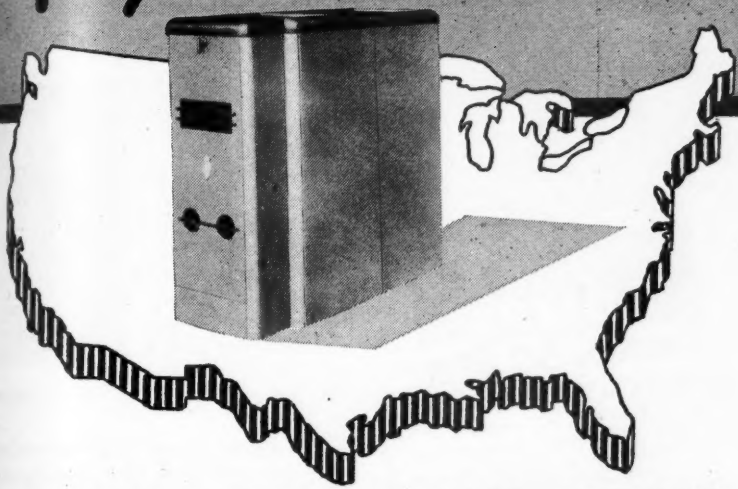
For several years the California Industrial Accident Commission, under whose direction is prepared the state code governing liquefied petroleum gas operations, has been endeavoring to bring up to date the existing safety orders.

To that end, revisions of the present code have been submitted in open meetings to California dealers a number of times. Suggestions and recommendations have then been written into the proposed, new code and resubmitted for further discussions.

Dealers May Offer Suggestions

At the present time, the revised code is deemed to be very near complete but there will be two more public hearings for final consideration by industry men. One of these will occur in San Francisco on April 26 at 10 o'clock in the morning in Room 160 of the State Bldg., and the second will be held in Los Angeles on April 30 at 10 a.m. in the auditorium of the State Bldg. All interested parties are invited to attend and take part in the discussions.

Payne ZONEAIR



PRE-WAR PERFORMANCE ASSURES POST-WAR PREFERENCE, COAST TO COAST

Building load for gas companies, sales for heating dealers . . . and good will for both . . . PAYNE gas furnaces have been associated with advanced design and engineering leadership for 30 years. ★ Post-war models will be improved, of course . . . but gradually, soundly, and only after exhaustive tests. And they will be ideally adapted to . . .

Payne ZONE-CONDITIONING

. . . a progressive development of the time-tried PAYNE "Unit" heating system: Winter air-conditioning and cooling summer ventilation, *controlled by zones or rooms.* Write for new ZONE-CONDITIONING booklet.

ARMY (E) & NAVY

PAYNEHEAT

30 YEARS OF LEADERSHIP

GAS FUEL (HAS) EVERYTHING

Payne FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

BUTANE-PROPANE
PUMPS
Capacity 50 GPM

MODEL T-2 is designed for average Tank Truck service. Has capacity of 50 gpm when connected to truck transmission power take-off shaft at 500 rpm.

SPECIAL FEATURES

- **EASE OF INSTALLATION** . . . Four outlet ports. Simplifies piping.
- **NO HAZARDOUS LEAKS** . . . Simplified fluid sealed packing box assures perfect seal.
- **MINIMUM WEAR** . . . Balanced gear construction permits efficient operation without lubrication.
- **HIGH PRESSURE CAPACITY** . . . Rugged construction, 250 lbs. working pressure. Ample pressure for fast transfer and bottling service.
- **SMALL SIZE** . . . **LIGHT WEIGHT.** Length 16-in., width 10-in., wt. 90 lbs. Larger and smaller capacity models for Tank Truck mounting or direct-connected electric drive.

WRITE FOR FULL INFORMATION

SMITH
Precision Products
COMPANY
1135 Mission Street
South Pasadena, Calif.

Ray G. Logue, Ward Heater Co., Passed Away Feb. 22

Ray G. Logue, 62, vice president and general manager of the Ward Heater Co., Los Angeles, passed away Feb. 22 of a heart attack. Mr. Logue has been identified with the Pacific Coast gas industry for more than 30 years, starting his career with the Seattle Lighting Co. In 1917 he came to Los Angeles as president of Beacon Lighting Co. He joined Ward in 1927.

R. G. LOGUE

Mr. Logue was a leading member of the Association of Gas Appliance and Equipment Manufacturers, serving in 1940 as convention chairman for that association's annual meeting in Los Angeles. A member of the Pacific Coast Gas Association for 21 years, he served as general chairman of the manufacturers' section for two years, 1938-39. Prior to that he had served as vice chairman and as chairman of the section's heating division. He was a member of the Southern Gas Association and of the Gild of Ancient Supplers of Gas Appliances, Skills, Gins, Accessories and Substances.

Walter Hochuli Given New Appointment

Walter Hochuli, director of distribution and marketing for PAW, has been named chairman of the operations committee, top administrative group in PAW.

He succeeds Bruce Brown, who recently resigned to return to Standard of Indiana.

ORDER YOUR COPY NOW

It's off the presses!

THE BOTTLED GAS MANUAL

A field guide and text book for dealers, servicemen and salesmen who handle LP-gases, equipment, appliances.

By C. C. TURNER

•

352 PAGES

•

24 CHAPTERS

We pay postage on orders accompanied by check or money order. In California add 10c for sales tax. In Canada add 40c for excise tax.

Every month, for the past three years, chapters of THE BOTTLED GAS MANUAL have appeared in your copies of BUTANE-PROPANE NEWS.

Now in book form . . . this is a handy reference for every dealer, salesman and service man.

Answers to everyday questions about LP-gases, equipment and appliances. Quick solutions to hundreds of technical problems.

On the job, it aids field men with installation, maintenance and repairs. In salesman's pocket, it provides prompt answers to consumers' needs. On dealer's desk, it helps compute and control operating costs.

MAIL ORDER TODAY

BUTANE-PROPANE News, Publishers
1709 West 8th Street, Los Angeles 14, Calif.

SPECIAL OFFER
25% Discount on All Orders of 10 or More.

$4.00 per copy

Gentlemen: Please send me . . . . . copies of The Bottled Gas Manual for which I am enclosing check (or money order) for $. . . . . .

Name . . . . . Position . . . . . .

Company . . . . . .

Address . . . . . City and State . . . . . .

Differences in Gases Explained By Fire Marshal L. C. Lund

The explosion in Cleveland last fall of holders containing liquefied natural gas still confuses some people who don't understand that there is a difference between natural gas that is liquefied and liquefied petroleum gas.

Dealers will be interested in having a statement that definitely clarifies all doubt. It was prepared by Leonard C. Lund, in charge of the Minnesota fire marshall department, and president of the Fire Marshal Section of the National Fire Protection Association.

Mr. Lund's message, addressed to Frier McCollister, of the Lawrence H. Selz Organization, publicity counsel for the LPGA, follows:

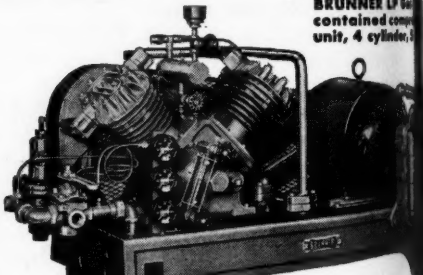
"The unfortunate disaster in Cleveland has resulted in a lot of people confusing the liquefied natural gas involved in that disaster with liquefied petroleum gas. Perhaps the confusion is due to the similarity of terms and to the fact that both are fuel gases.

"Natural gas is largely methane, a gas that cannot be liquefied at any temperature above —116° F., regardless of the pressure imposed upon it. Therefore, the natural gas that was stored in the large heavily insulated containers at Cleveland was cooled below —116° F., liquefied under pressure and the liquid further cooled to —250° F., at which temperature little or no pressure was required to maintain it as a liquid. Heat was utilized to regasify it when it was desired to feed it into the piping that supplies the industries and residences of the city.

"Liquefied petroleum gas is not

DON'T LOSE VITAL LP GAS VAPOR
when unloading tank cars

Many LP Gas operators are losing 500 to 1000 lbs. of liquid petroleum gas because they don't salvage the vapor left in tank cars after unloading. But they are paying for this lost poundage and its transportation! You can salvage this residue vapor by using the Brunner LP Gas Unit. This saving alone will quickly pay for the unit. In addition, the Brunner unit will reduce the time for tank car unloading. The Brunner LP Gas Unit for gas transfer and recovery is outstanding in speed, efficiency, safety and low costs. Brunner Manufacturing Co., Utica, N. Y., U. S. A.



BRUNNER LP Ga... contained comp... unit, 4 cylinder, ...

ARMY E NAVY
BRUNNER
For over 37 years the Symbol of Quality

WRITE FOR THIS NEW FREE BOOKLET
It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.

methane, but is a fuel composed predominantly of propane, propylene, butanes, butylenes and mixtures of these gases. All of these gases can be converted to a liquid by moderate pressure at atmospheric temperature. This fact is utilized in storing liquefied petroleum gas in containers for domestic and industrial uses.

"It will be noted from the above that liquefied natural gas and liquefied petroleum gas are not only different but the conditions under which they are stored are not comparable.

"Liquefied petroleum gas systems are tested and listed as standard by Underwriters Laboratories, Inc. They are installed in compliance with the standards of the National Board of Fire Underwriters as recommended by the National Fire Protection Association (N.B.F.U. Pamphlet No. 58)."

Butane Officer Develops Jig to Round Up Tank Shells

H. O. Bailey of Jackson, Miss., a member of Mississippi Motor Vehicle Commission, has developed a jig to assist in rounding up tank shells before attaching heads.

This machine is used to round out plates after they have been tacked in order that the head can be assembled with less labor and to speed up production. After a plate is put into this machine it is held rigid so that dents or bent places, which usually occur in plates, can be hammered round.

The machine can be operated by hand lever and hydraulic or air pressure and it can also be used in tacking the complete tank.

Mr. Bailey believes that his machine will aid tank fabricators in assembling tank heads and other plant operations.

COFFEE URNS your customers will WANT

This is about the coffee urns we are designing for post-war selling. . . . They will be better urns and they will make the very best coffee. This is not wishful thinking — new ideas are being worked out in our engineering department; they have reached the point of being ready for use, having passed the experimental stage.

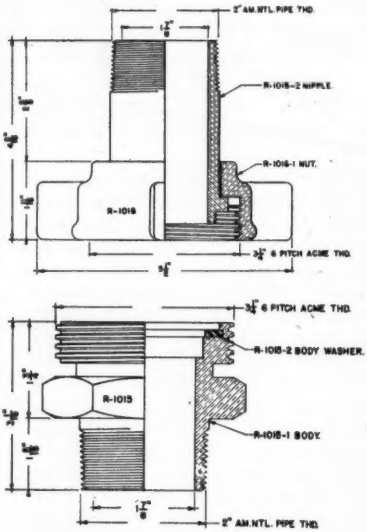
Blickman Coffee Urns of the future will be minus many of the inconveniences of today's urns. They will have benefited by lessons learned through wartime necessities — they will make possible worth-while economies for their users. Their modern, exclusive features will build customer goodwill and help to increase your LP-gas sales. Ask to be put on the list of those who will receive information as soon as it is released. Why not drop us a line?

3-Piece Battery, Stainless Steel Coffee Urns

S. BLICKMAN, INC.
Manufacturers of Food Service Equipment
2103 Gregory Ave. • WEEHAWKEN, N. J.

BUY RONEY CONNECTIONS

for Safety and Speed

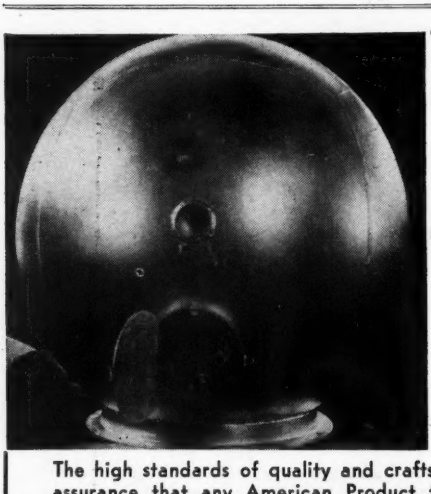


Safe connections, quickly made are the two important features to be found in the Roney Jumbo valves and connections. Filling a need which has long existed, due to lack of standardized connections, these fittings speed the handling of liquid and greatly minimize hazards. A coarse pitch Acme thread union nut, in conjunction with a neoprene gasket, which can be made up tight without the use of the usual tools, insures speed and ease of handling.

R-1016 UNION COUPLING (top) is for use with the R-2651 Valve or R-1015 Bushing. It has malleable cast bronze wing nut; 2" male N.S. pipe thread nipple. Internal bore is equivalent to 2" extra heavy steel pipe. Should be permanently attached to filler hose.

R-1015 BUSHING (bottom) is for use in adapting 2" globe or gate type filler valves to use with filler hoses equipped with R-1016 Union Coupling. It eliminates leakage occuring where metal to metal pipe unions are employed in making connections.

L.C. RONEY INC.
1740-44 W. 59th ST. · LOS ANGELES, CALIF.



IF IT'S AMERICAN BUILT

YOU KNOW IT'S GOOD

The high standards of quality and craftsmanship set by American give users the assurance that any American Product they buy will be the best that can be obtained. Special units like the spherical Butane Propane Pressure Tank shown above are made "to order", to meet individual specifications.
For the best in L P G service, specify American . . . It's Quality That Counts.

AMERICAN PIPE & STEEL CORPORATION
Alhambra *Manufacturers and Distributors* California

PROPERTY OF THE
SEATTLE PUBLIC LIBRARY

Dave Purrington, with Standard Oil Co. 29 Years, Resigns

D. D. Purrington, for the last 29 years associated with the Standard Oil Co. of California, has resigned to become consulting engineer for the newly organized "International Industries, Inc."

D. D. PURRINGTON

Since 1932 Mr. Purrington has acted as a liquefied petroleum gas specialist for Standard. Currently, he is vice president of the LPGA and has served on many important association committees. He helped to establish the Pacific Coast Section of the association and is a member of the Industry Committee of PAW District V, covering the Pacific Coast.

Midwest Freight Bureau Proposes Rate Increase

Proposal 3835 of the Standing Rate Committee, Midwestern Freight Bureau, 116 East 9th St., Kansas City, Mo., proposes to increase the rating on returned empty containers as shown in Items 2495 through 2520 of Midwestern Tariff 1025, ICC-21, from Class 27-1.2 to Class 41, any quantity and to restrict the rating to single applications.

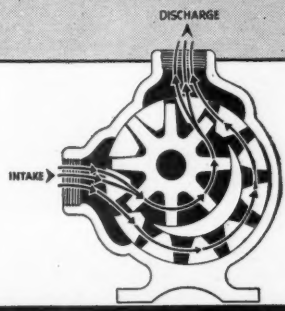
The items referred to cover all kinds of returned empty containers, including compressed gas cylinders.

Comments of interested parties on this proposal must be received by the Standing Rate Committee, Midwestern Freight Bureau, by Feb. 24, 1945.

Another Reason Why

VIKING

Is The
LARGEST SELLING ROTARY
PUMP IN THE WORLD



BY OPERATING THE VIKING PUMP IN THE OPPOSITE DIRECTION THE FLOW OF LIQUID WILL BE REVERSED

Viking Rotary Pumps are designed and built to deliver liquids with a smooth, even flow . . . without pulsation or pounding.

"Smooth as silk" performance is assured because Vikings work with no reverse motion to create turbulence. With a Viking, the liquid enters your pump through an over-size orifice, travels in a curve three-quarters of the way around your pump, and is then discharged. Vikings will operate equally well in either direction.

For complete information about Viking Rotary Pumps widely used in the butane-propane industry, write today for Bulletin 2300. It will be sent free by return mail.

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

Former Jobs For Servicemen

President Stanley H. Hobson explains the Geo. D. Roper Corp. re-employment policy for servicemen to Joseph P. Larson, aviation cadet and former Roper employe.

RETURNING service men will be seeking their old positions in the liquefied petroleum gas industry when the war ends.

Among the first to establish a policy which will give its employes who were in the war the most favorable opportunity to return to their old jobs, is the Geo. D. Roper Corp., of Rockford, Ill. This firm has made a definite statement of policy to every Roper man and woman now serving his country. These total more than 400.

According to S. H. Hobson, company president, the policy embraces these four main features:

1. **A job for every employe returning from the armed forces.**
2. **Proper placement in work of the returning veteran.**
3. **Assistance in finding more suitable work or in planning an educational program.**
4. **Direct counsel and help to the handicapped veteran in finding a satisfactory place in civilian life.**

The program is already in operation. The personnel department, directed by Willard Otto, is supplying full information to returning veterans. Several former service men are back at work.

Roper employes who are now making pumps for ships that power the attack will continue to be needed later for production of peacetime LP-Gas pumps and ranges.

Export Office Will Handle Foreign LP-Gas Business

Dick Adair, of the Dix Manufacturing Co., Los Angeles, announces the opening by his company of an export office at 80 Broad Street, New York City.

This action was taken following the return of Mr. Adair from a meeting of the Foreign Trades Council in New York. At that time he talked with representatives of several foreign countries who were all keenly interested in the future possibilities of liquefied petroleum gas sales in their respective countries.

Mr. Adair states that he anticipates a widely expanding industry which will take in many foreign countries after the war. He refers especially to the possessions of Great Britain and the countries in South and Central America.

Truck Routes for Transports Before Oklahoma Legislature

If House Bill No. 247 (Flanagan), now before the state legislature, is passed, the Oklahoma State Highway Commission will be required within 30 days after effective date of the act

BULK PLANTS
100 LB.—W.P.
ANY SIZE

ASME

BULK PLANTS
125 LB.—W. P.
ANY SIZE

ASME

BULK PLANTS
200 LB.—W. P.
ANY SIZE

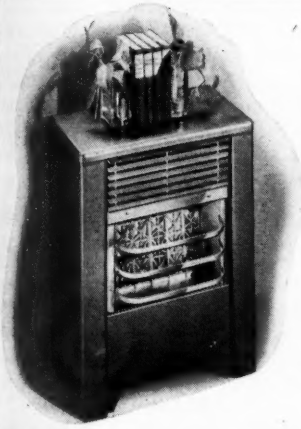
WE HAVE MATERIAL AND FITTINGS TO COMPLETE SEVERAL LARGE STORAGE VESSELS

LET US ASSIST YOU IN FILING WITH W.P.B. AND P.A.W. FOR APPROVAL

DON'T WAIT UNTIL YOU MUST HAVE THE STORAGE. APPLY NOW.

IF YOU ANTICIPATE PURCHASING A BULK PLANT ANY TIME BETWEEN NOW AND THE WINTER OF 1945, CONTACT

DELTA TANK MANUFACTURING CO.
BATON ROUGE, LOUISIANA



FEATURES THAT SELL

A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer—Safer, heaters, yet priced unbelievably LOW. Write for literature.

DEARBORN

WORLD'S FINEST...SAFEST

L.P.G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.

BUT. PRO. MIX. NAT. MFG. GAS.

FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

DEARBORN STOVE CO.

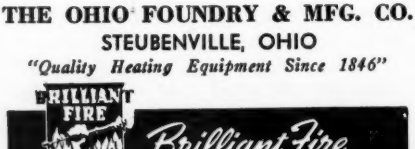
3256 Milwaukee Ave., CHICAGO, ILL

3625 S. Grand Ave. LOS ANGELES, CALIF.

KEEP TUNED TO
BRILLIANT FIRE
LP-GAS HEATERS
IN 1945

Write for Latest Bulletin

THE OHIO FOUNDRY & MFG. CO.
STEUBENVILLE, OHIO
"Quality Heating Equipment Since 1846"



BUEHLER
Tank and Welding Works

Manufacturers of Tanks,
Welded and Pressed
Steel Products

5000 Pacific Boulevard
LOS ANGELES 11, CALIFORNIA

to designate routes in every city, town or village of the state to be traveled by any motor vehicle transporting gasoline, benzine or liquefied petroleum gas in quantities in excess of 50 gallons.

Exceptions are made which include cities and towns which have already designated such routes by legal ordinance which have been approved by the highway commission. Such motor vehicles may leave designated routes only when delivering all or part of their loads or for the purpose of having repairs made to the vehicle, and then only upon authority of officers or employes of the city or town.

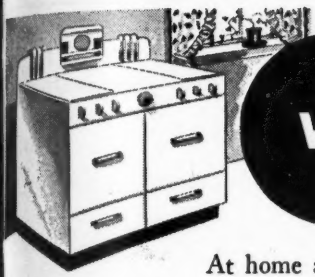
H.B. 248, by the same author, also pending, applies to "Class C" motor carriers transporting "liquefied gases" and other similar substances; also "octane, benzine and gasoline". It provides that such carriers transporting the products named in the act, shall be required to secure certificates of convenience and necessity from the State Corporation Commission.

The Commission cannot issue such certificates until the motor carrier has filed with that body a liability insurance policy or bond covering public liability and property damage issued by some insurance company authorized to do business in Oklahoma.

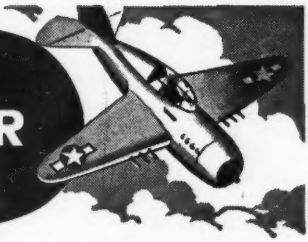
Truck Operators Must Still Have Tires Inspected Regularly

Failure of commercial motor vehicle operators to comply with regulations requiring periodic tire inspections will adversely affect the claims of these operators for new tires, the ODT announced Feb. 20.

The ODT warned truck operators that General Order ODT21A requires all commercial motor vehicle operators to have their tires checked after each 5,000 miles of operation or after every six months of operation if operated less than 5,000 miles.



IN WAR OR PEACE



At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write us for higher quality Butane and Propane.

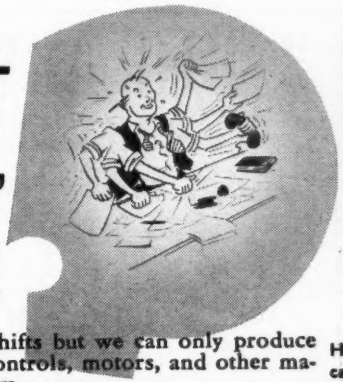
The **CARTER** Oil Company

DEHYDRATED **PROPANE • BUTANE**

WHOLESALE ONLY

TULSA, OKLAHOMA

Where's that book— "How to say 'No' to a Good Friend"

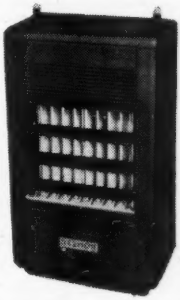


Every day, Reznor has to say "no" to good friends in all sections of the country, who want Reznor Unit Heaters.

We continue to operate full shifts but we can only produce as many heaters as we have controls, motors, and other materials with which to build them.

If you send in an order for Reznor Heaters, we cannot submit any definite delivery promise, except for the most urgent of war or civilian requirements.

Reznor, in business since 1888, is the oldest name in gas-heating equipment.



Reznor Suspended Unit Heaters provide automatically controlled heat when you want it, where you want it. Ideal for restaurants, factories, retail stores, bowling alleys, shops, churches, and any building, large or small which needs clean heat.

REZNOR MANUFACTURING CO.

REZNOR

304 JAMES STREET MERCER, PENNA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"

The Postwar Picture Is Taking Shape

. . . Bringing Modern Convenience to Rural Residents

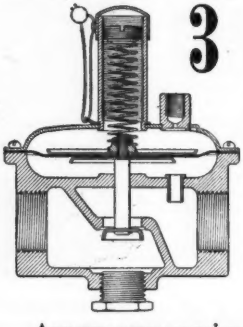
OPPORTUNITY is knocking on the door of the L-P Gas industry right now. When the war is over low priced L-P Gas service will bring city conveniences for cooking, heating, refrigerating and supplying hot water to farmers and small town residents.

Propane Storage Tank fabricated at Downingtown. Used for distribution of Propane in a farming community.

Now is the time to get ready for substantial post-war expansion. When in the market for propane storage tanks either for surface or underground use, it is important to choose carefully a fabricator with a specialized knowledge of design and manufacture.

It will pay you to get the benefit of Downingtown's engineering consultation . . . it will enable you to make a wise choice when ready to place your order. Our engineers will gladly work with you on preliminary plans and specifications. Inquiries welcome.

DOWNINGTOWN IRON WORKS
DOWNINGTOWN, PA.
WELDED and RIVETED PRODUCTS



3 BIG ADVANTAGES

GENERAL CONTROLS

V-300 Low Pressure Gas Regulator

- HIGH CAPACITY
- CLOSE REGULATION
- NOMINAL COST

Answers every requirement for a small, compact, high-quality Gas Regulator.

The V-300 Regulator is scientifically designed to resist corrosion from all types of fuel gases. It is precision-built to insure reliable, efficient, trouble-free operation.

For complete information on controls for the Gas Industry, write for Catalog 52B or contact nearest Factory Branch or Distribution

GENERAL CONTROLS

801 ALLEN AVENUE GLENDALE 1, CALIF.

Factory Branches: Boston, Chicago, Kansas City, Dallas, Denver, Detroit, Houston, Philadelphia, New York, Cleveland, San Francisco. Distributors in principal cities.

Georgia Butane Gas Co. Buys Georgia Automatic Gas Co.

Georgia Butane Gas Co., of Sandersville, Ga., has purchased the Georgia Automatic Gas Co., of Atlanta, it has been announced by Hermann Paris, of Sandersville.

HERMANN PARIS

The two concerns will be operated as separate corporations, according to Mr. Paris, who is president of both organizations. A. Price Aycock, formerly president of Automatic Gas Co., of Columbus, Ga., has disposed of his interest in that company and has become associated with Georgia Automatic Gas Company in the capacity of vice president and general manager.

The combined companies will serve approximately half the state of Georgia.

Bart Taine Again Active In Engine Conversions

Bart Taine, who has been active in the liquefied petroleum gas industry on the Pacific Coast since 1928, is now in charge of the butane-propane equipment of the Commercial Auto Electric Co., with headquarters at 1315 S. Boyle St., Los Angeles.

For the past two years Mr. Taine has been employed by the quartermaster's department of the army as a civilian technician. He served in several states, in Hawaii and Alaska.

In the past, Mr. Taine has been concerned with the development of butane and propane for domestic and

WAR TESTED

SINCLAIR LP-GASES

War is a survival of the fittest. That's why only the finest men, material and machines are selected. Sinclair Liquefied Petroleum Gases have proved their "war worth" . . . fueling bulldozers, tractors and earthmovers, maintenance units, and field kitchens—in defense plants and housing units. Thousands of veterans are learning to appreciate just how adaptable, speedy, convenient, practical and economical liquefied gases are.

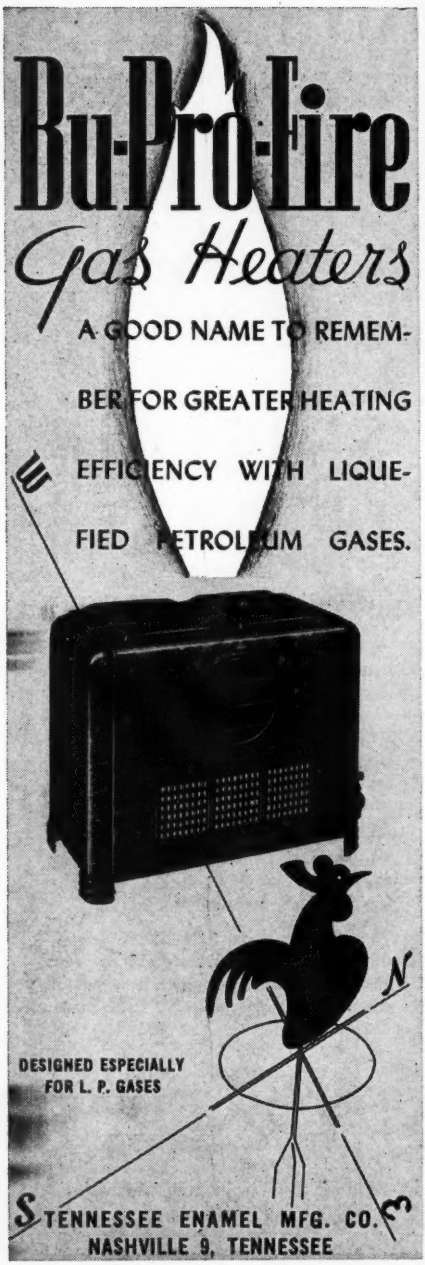
In post-war years, LP-Gases will still have their war-proved virtues, with many new uses—in many new products.

For serving regular industrial and domestic customers in addition to war demands, Sinclair invites you to enlist the energy, power, speed and utility of its Liquefied Petroleum Gases.

SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division

Sinclair Bldg. Tulsa, Oklahoma


Bu-Pro-Fire
Gas Heaters
A GOOD NAME TO REMEMBER FOR GREATER HEATING EFFICIENCY WITH LIQUEFIED PETROLEUM GASES.
DESIGNED ESPECIALLY FOR L. P. GASES
TENNESSEE ENAMEL MFG. CO.
NASHVILLE 9, TENNESSEE

Mr. and Mrs. Bart Taine beside one of the trucks recently converted to use propane. Mrs. Taine has been assisting her husband by cleaning and remodeling gasoline and liquefied gas carburetors brought to the shop for repair.

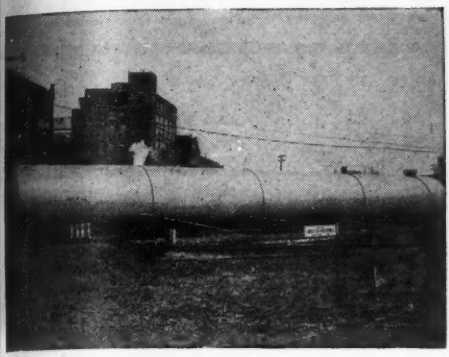
industrial use in the Northwest. In 1936 he started the Butane Engineering Co. at Walla Walla, Wash. Later he was associated with the Multnomah Fuel Co. of Portland, Ore., and helped in that company's development of its liquefied petroleum gas business.

At his plant in Los Angeles, Mr. Taine is converting trucks over to propane. The conversion of diesel-fueled trucks to propane promises to be one of the most important phases of his business in the immediate future.

Oklahoma and Texas Tank Wagon Prices Adjusted

Amendment 9 to Price Regulation 137, effective Feb. 26, adjusts tank wagon prices of liquefied petroleum gas to distributors in Oklahoma, the Texas Panhandle area and 18 counties in the West Texas area. This is done by setting specific prices for single lot deliveries up to 500 gallons.

For sales above 500 gallons, a specific maximum is simultaneously set under Price Regulation 88.



30,000 Gal. Water—25,000 Gal. Liquid Propane Storage Tank 8' 4-13/16" O.D. x 76' 9-5/16" Long.

LEADERSHIP!

Quality - Safety Economy

Butane-Propane tanks fabricated in strict accordance with the ASME code; API-ASME Code; Dept. of Public Safety, Commonwealth of Massachusetts; and National Board of Boiler & Pressure Vessel Inspectors' regulations.

Bulk Tanks - Skid Tanks
Truck Tanks
for
Butane • Propane
Butane-Propane Mixtures

Complete bulk plants designed, fabricated and installed by experienced men. Detailed information and estimates furnished without obligation.

GAS PLANTS FOR MUNICIPALITIES

LANCASTER IRON WORKS, INC.

LANCASTER PENNA.

Gas Cylinder Truck —

Easy Handling — Saves Lawns

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES AVAILABLE NOW

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

Write for prices and folder.

THOMAS TRUCK & CASTER COMPANY

4503 Mississippi River, Keokuk, Ia.

THE TRADE

J. B. Tudhope has been appointed director of industrial relations of Florence Stove Co., according to a recent announcement by R. L. Fowler, president.

J. B. TUDHOPE

Mr. Tudhope is in charge of personnel administration at the Florence plants in Gardner, Mass., and Kankakee, Ill. His appointment is in line with the Florence policy of broadening the scope of employe activities at both plants, to further improve the good relations existing among employes.

Mr. Tudhope was formerly personnel director in the several plants of Fansteel Metallurgical Corp. in North Chicago and Waukegan, Ill. For several years prior to this, he operated as a consultant on industrial relations for many progressive organizations.

Change of name of the 30-year-old Payne Furnace & Supply Co., Inc., to Payne Furnace Co., is announced in connection with a recent acquisition of Payne assets by Dresser Industries, Inc., in a joint statement issued by H. N. Mallon, president of Dresser and E. L. Payne, president of the Payne company.

Payne furnaces operate on natural, manufactured and liquefied petroleum gases, and are used both for commercial and domestic heating. The Payne line includes gravity warm air systems, forced warm air units for winter air-conditioning and summer ventilation, gas floor and duplex furnaces, gas vent pipe and other accessories.

The merger of Payne with the Dresser Industries will enable Payne to amplify its facilities and resources and expedite the exchange of technical and research information.

No changes in management or general policies are anticipated under the new set-up.

General Controls Co., Glendale, Calif., announces the appointment of Joseph W. Wilson as manager of the Glendale branch office.

Mr. Wilson will devote his entire time to serving users of automatic controls in the heating, refrigeration, aircraft and industrial fields throughout the Southern California, Arizona and Southern New Mexico area.

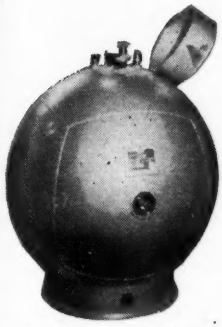
The Bastian Blessing Co., Chicago, announces the appointment of Myron E. Steczynski as director of standards and design.

M. E. STECZYNSKI

Mr. Steczynski has specialized on interchangeable manufacturing of cylindrical fits, screw and pipe threads, and tools and gages for producing and checking them.

He has invented several types of

MODERN DESIGN



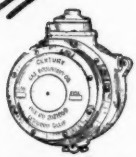
FOR DOMESTIC PROPANE USERS

Built by

SUPERIOR TANK & CONSTRUCTION CO.

6155 South Eastern Los Angeles, California
Phones: AN-4157 Night: Fairfax 1545

CENTURY



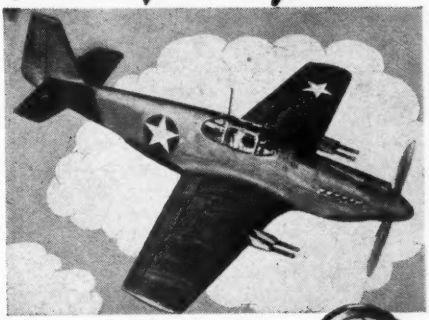
CENTURY GAS EQUIPMENT CO.

11188 Long Beach Blvd.
Lynwood, California

Manufacturers for over 18 years of

Butane-propane and natural gas Carburetors and Heat Exchangers for Trucks, Tractors, Oilfield and Other Stationary engines.

Today's Fighters



Use Tomorrow's Oven Heat Controls

Robertshaw

ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PENNSYLVANIA

Bottled Gas CABINETS

Hood-type as well as full size. Well built of heavy metal with protective coating of paint, or galvanized. Thousands of installations giving satisfactory service. Write for details and prices.

Liquid Propane Vaporizer

Installs OUTSIDE tank. Always accessible. Insures vaporized gas in any weather. Write for details and price.

The Oxford Company

Oxford Pennsylvania

gages to assist the LP-Gas industry in insuring better fits, thus making it possible to provide gas-tight connections.

Chas. A. McNamar, president of The McNamar Boiler & Tank Co., has recently been appointed an industry member of the Eighth Regional War Labor Board, comprised of the states of Oklahoma, Texas and Louisiana.

F. T. Ketchum Sales Manager For Caloric Gas Stove Works

Caloric Gas Stove Works, Philadelphia and Topton, Pa., announces the appointment of Frederick T. Ketchum as sales manager, according to a notice released recently by Julius Klein, general sales director of the company.

F. T. KETCHUM

Mr. Ketchum comes to Caloric after more than three years of service with the Government as consultant chief of the WPB purchasing policy division, covering plumbing, heating and cooking equipment.

Mr. Ketchum will have the assistance of three divisional managers in setting Caloric postwar sales policies.

One of these is G. Dwight Sutherin, named regional sales manager for the central states. His headquarters will be in Chicago.

Caloric has already manufactured a number of ranges with "single point ignition" pilots, which enable all range burners, including oven and broiler, to be lighted from a single pilot.

S. Blickman, Inc., of Weehawken, N. J., fabricators of metal equipment, has been granted a second renewal of the Army-Navy "E" award and is now privileged to fly the official pennant with two stars.

The award was given for continued excellence in the production of war equipment.

Alfred G. Blake, on leave of absence from the sales staff of the Ruud Manufacturing Co., of Pittsburgh, Pa., to the War Manpower Commission, has been promoted to director of field operations for the Training Within Industry division of WMC.

He was formerly TWI director of management contacts.

P. W. McCoy, who for the past four years has been active in the war work of the Bryant Heater Co., has returned to its engineering department in direct charge of gas heating equipment development work.

Mr. McCoy will head the gas heating division of the Bryant engineering department, and will devote his efforts to improvement of these products for the postwar period.

J. A. Cerny, who was on leave of absence from Bryant with the Columbia University, Division of War Research, has returned to resume supervision of the control division of the engineering department.

Mr. Cerny is assisted in his activity by Fred W. Schulmeister and Noel Green.

Servel Inc. announces the reorganization of its export activities by the formulation of the International Division, according to Geo. S. Jones, Jr., vice-president in charge of sales.

The new division will be under the direction of A. F. Scharer, who has been in charge of Servel's export business since 1929. Headquarters of

For Safety and Economy

ETHYL MERCAPTAN

—Purified—

The ACCEPTED standard odorant for liquefied petroleum gases.

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS NEW YORK

Distributors for

REGO
LP GAS EQUIPMENT

Hackney
BUTANE-PROPANE CYLINDERS

L. C. RONEY INC.

GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas
GAS EQUIPMENT SUPPLY CO.

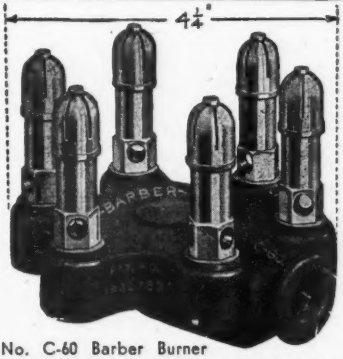
BUTANE and PROPANE TANK HEADS

A.S.M.E. type
for the manufacturers of
BUTANE & PROPANE TANKS

* * * * STANDARD RADIUS * * * *
* * * * * 80% RADIUS * * * * *
* * * * * ELLIPSOIDAL * * * * *

DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"
Write for Head Catalog

The COMMERCIAL SHEARING & STAMPING COMPANY
YOUNGSTOWN, OHIO.



No. C-60 Barber Burner

BARBER APPLIANCE BURNERS

Barber Units, in standard or special shapes and sizes, are correctly designed to fit the individual appliance, and give complete combustion on Butane-Propane or any other gas. You can increase your appliance business—submit your special burner problems NOW to Barber engineers. Complete catalog on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland 14, Ohio

the International Division of Servel Inc. will be at 51 East 42nd St., New York 17, N. Y.

Howard V. Nichol has recently been added to the staff of the advertising and sales promotion department of Servel Inc.

For the past year and one-half he has been employed by the Evansville modification plant as a product illustrator.

Les W. Brate has rejoined the sales force of the Estate Stove Co., Hamilton, Ohio, as district manager in the North Central territory, it has been announced by S. C. Bernhardt, vice president in charge of sales.

As district manager in that territory, Mr. Brate will be back on familiar ground, having traveled Wisconsin and upper Michigan for Estate prior to the war.

There was also announced the appointment of the Pensacola Appliance Co., Pensacola, as Estate "Heatrola" appliance distributor in the northwest territory of Florida.

Roy W. Tarleton, mayor of Compton, Calif., and for 14 years general manager of the Southern Heater Co., of the same town, in February accepted a position as general manager of the Hot Stream Heater Co. plant in Dallas, Texas.

During his career on the Pacific Coast, he was active in general industry affairs, serving at one time as chairman of the water heater division, manufacturers' section, Pacific Coast Gas Association.

For Sale

Propane Transport Trailer and Tank

☆

4,200 Water Gallon Capacity
200 lbs. W.P. ASME V-69
1100 x 20 Dual Tires

☆

Write Box 500
Butane-Propane News
1709 West 8th, Los Angeles, Calif.

Gas Furnace Industry Committee Selects Officers

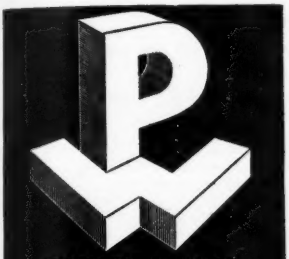
The newly appointed industry advisory committee representing manufacturers of gas-fired furnaces recently held its first meeting with officials of the Office of Price Administration in Washington, D.C., OPA has announced.

The following officers were elected: Chairman, F. C. Packer, Payne Furnace & Supply Co., Beverly Hills, Calif.; vice chairman, Arthur Wrieden, Lennox Furnace Co., Syracuse, N. Y.; secty.-treas., C. B. Kuhn, Coleman Lamp and Stove Co., Wichita, Kan.

Representatives of the industry said at the meeting that the majority of manufacturers of gas-fired furnaces were primarily engaged in war work. The discussions were centered chiefly around the problems and methods of operation peculiar to the supply of this type of commodity during the present war emergency and that will confront the industry during the postwar reconversion period.

Refineries and Plants

For Recovery of
Isobutane
N-Butane
Propane



PARKHILL-WADE
CONSULTING AND
CONSTRUCTION ENGINEERS
1625 SOUTH ALAMEDA STREET
LOS ANGELES CALIFORNIA

"KEEP 'EM FRYING"

Use PITCO

Frialators

REG. U.S. PAT. OFFICE

SAVE FAT . . . GAS . . . SPACE

Deep-Fat Frying at Its Best

- ★ Customers can serve a wider variety of fried foods.
- ★ Left-overs or by-products quickly converted into daily specials.
- ★ Increase in customer business means increase in the gas load.
- ★ Actual saving in fat alone more than pays total cost of gas required to operate them.

J. C. PITMAN & SONS,
INCORPORATED
711-719 Broad St. West Lynn, Mass.

OPEN THE DOOR

OPPORTUNITY KNOCKS!

Use Southern's Complete Engineering Service to Prepare for Tomorrow's Postwar Programs in LP-Gas Dealerships

- PROPANE BULK PLANTS
- TRUCK TANKS—VESSELS
- LP-GAS TRANSPORTS

PLANT: SAPULPA

Gas SOUTHERN Systems

SOUTHERN GAS AND EQUIPMENT CO.
Atco Bldg., Tulsa, Okla.

WATER HEATERS
'THE *Quality* LINE'

IN ALL SIZES AND PRICES

UNITED STATES HEATER CO.
COMPTON, CALIFORNIA

CLASSIFIED

Classified advertising is set in 6-point type, without border or display, at the rate of 10 cents per word per insertion; minimum charge per insertion $2. Box numbers for replies count as 5 words. Count as a word each one letter word and each group of figures. Classified advertising is only accepted when payment accompanies order. Copy and payment must reach publisher's office prior to 10th of month preceding publication.

HELP WANTED

SALES ENGINEER WANTED — A WELL established Ohio manufacturer requires the services of a competent sales engineer to assist in the development of sales and accessories for the LP-Gas Industry. This position offers excellent post-war possibilities. Give experience, education, age and salary expected. At present the company is engaged in AA1 War Production. Write Box 475, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, California.

SITUATIONS WANTED

DISCHARGED SERVICE MAN, EXPERIenced LP-Gas, natural or manufactured gas service man, Servel Electrolux refrigerators and electric refrigerators. Service manager for Modern Appliance Co., Denver, Colo., before entering the service. Desire similar connection with a reliable firm. W. K. Bales, 615 S. Williams St., Denver 9, Colorado.

MANAGER WHOSE RECORD PROVES sound, profitable promotion of his employer's business, backed by broad experience in LP sales and engineering, open for connection with reliable marketer. Write Box 420, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, California.

BUSINESS OPPORTUNITIES OFFERED

FOR SALE—FULLY ESTABLISHED, GOING business, Code LP pressure tank manufacturing plant in highly producing Central West gas area. High class dealer relationship. Clean. Several years outside auditor's profit showing available. Write Box 450, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, Calif.

BUTANE-PROPANE GAS BUSINESS FOR sale. Have good territory and good equipment. Inquire Box 400, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, California.

BUSINESS OPPORTUNITIES WANTED

WANTED TO BUY: GOING LP-GAS BUSIness. Preferably in Mountain States. Will pay cash. Write Box 410, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, Calif.

INTERESTED IN BUYING LIQUID PETROleum Gas Business. Would consider partnership. Write Box 440, BUTANE-PROPANE NEWS, 1709 W. 8th St., Los Angeles 14, Calif.

EQUIPMENT WANTED

WANTED—FOUR PROPANE BULK STORage tanks—6,000 to 15,000 gallon capacity—200 lb. working pressure. In reply give manufacturer, year fabricated, location and price. H. S. Rowan, 2295 Main Street, Bridgeport 6, Connecticut.

WANTED—5,000 OR 10,000 GALLON PROpane Tank with or without Valves, or several tanks of smaller capacity each. Dire emergency. Wire GAS SERVICE CO., Coldwater, Mich.

WANT TO BUY 10 GAS TANKS, 8000 TO 20,000 gal. cap. The DARIEN CORPORATION, Darien, Conn.

WANTED: ICC-116, OR 7-70, AND 4B-240 cylinders, used cylinder valves, bulk propane tanks. Box 495, Syracuse, New York.

EQUIPMENT FOR SALE

FOR SALE—ONE 4,000 BUTANE STORAGE, one 5,000 166 lb. W.P. transport. One 550 gal. Chevrolet truck transport or one 1943 Dodge 1,060 gallon propane transport. Both trucks complete with meter and pump. Write Box 453, BISHOP, CALIFORNIA.

FOR SALE—ONE 2,610 WATER GALLON propane twin tanker built in 1944, with 1942 Ford-6 Tractor. Excellent condition. BUTANE-PROPANE SERVICE, Holyoke, Colorado.

FOR SALE—ONE 1939 1½ TON CHEVROlet Truck with 1100 gallon water capacity, 96 pound WP tank, Roadmaster carburation, Roper pump, and hose and all fittings intact. This truck has new motor and excellent tires.

One 1940 1½ ton Ford Truck with 1500 gallon water capacity, 101 pound WP tank with the same accessories as above.

One 1944 1½ ton Dodge Truck with 931 gallon water capacity, 200 pound WP tank. This truck and accessories are new and have never been used. GAINES BUTANE EQUIPMENT COMPANY, Okmulgee, Oklahoma.

Wait!

for LP-Gas Carburetion by DIX

In the expansion period after the war, when the automotive industry will be looking for something "new" in butane-propane power, your best bet will be DIX LP-Gas Carburetion Unit. It will pay to WAIT for something NEW.

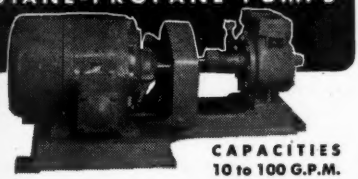
Han probado ustedes BUTANE como combustible? En caso que no, escribanos.

DIX MANUFACTURING CO.

3447 E. Pico Blvd. Los Angeles 23, Calif.

HP-121

HARMAN PLANT-TYPE BUTANE-PROPANE PUMPS



CAPACITIES 10 to 100 G.P.M.

SAFE . . . DEPENDABLE . . . REVERSIBLE ROTATION

NO CONTACTING METAL PARTS—POSITIVE DISPLACEMENT

These Harman Rotary Pumps are ideally suited for Bulk Plant and Service Station transfer of L P G between storage tanks, tank cars and automotive fuel tanks. Assembly consists of pump, back gear drive with guard mounted on bed plate. Also available with belt or direct connection. Operating efficiency assured by use of Harman principle utilizing a single rotor on a shaft rotating off center.

Write Today for Complete Information and Prices!

HARMAN EQUIPMENT COMPANY

Distributors

937 Santa Fe Avenue, Los Angeles 21 · 7 Front Street, San Francisco 11

PETROLEUM PRODUCTS HANDLING AND DISPENSING EQUIPMENT

Indispensable in dispensing

LIQUEFIED PETROLEUM GAS

BRODIE METERS

RALPH N. BRODIE CO., INC.

953 - 61st Street, Oakland (8) California • Cable Address "BRODICO" • Division Offices: Chrysler Bldg., New York City 59 E. Van Buren, Chicago • 302 South Pearl St., Dallas, Texas

Representatives and Stocks in All Principal Cities

A Name That Stands for Quality

McNAMAR

Tanks for most all L.P.G. requirements

•

McNAMAR Boiler and Tank Co.

Tulsa, Okla. Salem, Ill.

ADVERTISERS

American Car and Foundry Co..... 16
American Liquid Gas Corp..... 78
American Meter Co..... 57
American Pipe and Steel Corp..... 86
American Stove Co..... 11
Anchor Petroleum Co..... 1
Armstrong Products Corp..... —

Barber Gas Burner Co., The..... 99
Bastian-Blessing Co., The.....52, 53
Blickman, Inc., S..... 85
Blodgett Co., Inc., The G. S..... 59
Brodie Co., Inc., Ralph N.....103
Brunner Manufacturing Co..... 84
Bryant Heater Co..... —
Buehler Tank and Welding Works..... 90
Butler Manufacturing Co..... 41

Carter Oil Co., The..... 91
Century Gas Equipment Co..... 97
Chicago Bridge & Iron Co..... 49
Coleman Lamp and Stove Co., The.... 37
Commercial Shearing & Stamping Co., The 99
Cribben & Sexton Co..... 6

Dallas Tank Co., Inc..... 75
Dearborn Stove Co..... 89
Delta Tank Manufacturing Co..... 89
Detroit-Michigan Stove Co..... —
Dix Manufacturing Co.....103
Downingtown Iron Works..... 92

Ensign Carburetor Co., Ltd..... 71
Estate Stove Co..... —

Fisher Governor Co..... 5
Florence Stove Co..... 51

Gas Equipment Co., Inc..... 99
Gas Equipment Supply Co..... 99
General Controls 92
General Gas Light Co..... —
Globe American Corp..... 67
Grand Home Appliance Co..... 3

Handbook Butane-Propane Gases..... —
Harman Equipment Co.....103
Harper-Wyman Co. ..... —
Hays Manufacturing Co..... —

Kerotest Manufacturing Co..... —

Lancaster Iron Works, Inc..... 95
Lindemann, A. J., & Hoverson Co..... 14

Mallinckrodt Chemical Works..... 99
McNamar Boiler & Tank Co.....103
Merco Nordstrom Valve Co.....
Milwaukee Gas Specialty Co...Third Cover

Neptune Meter Co..... 45
Ohio Foundry & Manufacturing Co., The 90
Oxford Co. 97

Pacific Gas Corp.....Fourth Cover
Parkhill-Wade 101
Payne Furnace & Supply Co., Inc..... 81
Peerless Manufacturing Corp..... —
Phillips Petroleum Co..... 33
Pitman & Sons, J. C.....101
Pittsburgh Equitable Meter Co..... —
Pressed Steel Tank Co.....Second Cover

Radiator Specialty Co..... 72
Ransome Co. 54
Reliance Regulator Corp..... 63
Reznor Manufacturing Co..... 91
Rheem Manufacturing Co..... 20
Roadmaster Sales Corp..... —
Robertshaw Thermostat Co..... 97
Rochester Manufacturing Co..... 64
Roney, Inc., L. C..... 88
Roper Corp., Geo. D. (Pumps)..... 12
Roper Corp., Geo. D. (Ranges)..... 31
Round Oak Co..... 34

Scaife Co. .....Front Cover
Schoenberger Co., The W. J..... 46
Servel, Inc. 4
Sinclair Prairie Oil Co..... 93
Smith Meter Co..... —
Smith Precision Products Co..... 82
Southern Gas & Equipment Co.....101
Sprague Meter Co..... 15
Standard Oil Co. of California..... —
Superior Tank & Construction Co..... 97
Superior Valve & Fittings Co..... 10

Tappan Stove Co..... 76
Tennessee Enamel Manufacturing Co... 94
Texas Boiler & Machinery Co..... 68
Thomas Truck and Caster Co..... 95

United States Heater Co.....101

Viking Pump Co..... 87

Ward Heater Co..... —
Warren Petroleum Corp..... 60
Weatherhead Co., The..... 9
Welbilt Stove Co., Inc..... 42